DOCUMENT RESUME

ED 333 118 CE 057 982

AUTHOR Moore, Ken
TITLE Learning on the Farm. The Educational Background and Needs of New Zealand Farmers.
INSTITUTION New Zealand Council for Educational Research, Wellington.
REPORT NO ISBN-0-908567-94-4; ISSN-0111-2422
PUB DATE 90
NOTE 110p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS *Adult Farmer Education; *Agricultural Education; Educational Background; Educational Needs; *Farmers; *Farm Management; Foreign Countries; Postsecondary Education; Rural Youth
IDENTIFIERS *New Zealand

ABSTRACT

Malvern County (New Zealand) farmers (110 of a sample of 118) were interviewed in 1988 to investigate their farming techniques and methods. Questions were asked about educational background, current management practices, and training for younger farmers. The 93 percent response achieved reduced the possibility of sampling error within the survey area. Answers to questions relating to management showed the extent to which certain practices are carried out by local farmers. The survey showed that: (1) few new farmers undergo formal job training; (2) fewer than one-third of farmers seek advice directly from the Ministry of Agriculture and Fisheries; (3) farmers have little time to spend in off-farm training; (4) most farmers rely on other farmers for advice; (5) farmers prefer small group learning; (6) local knowledge, hard work, and working with little supervision are more important characteristics for farmers than trade or university qualifications; (7) sheep and cropping farmers discourage their children from a farming career; and (8) more farming women than men have received tertiary training. The survey analysis shows a direct relationship between length of schooling and the extent to which management practices are carried out. (The survey questionnaire, 6 appendices, and 118 references are included.) (NLA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 333118

Learning on the Farm

Ken Moore

BEST COPY AVAILABLE

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

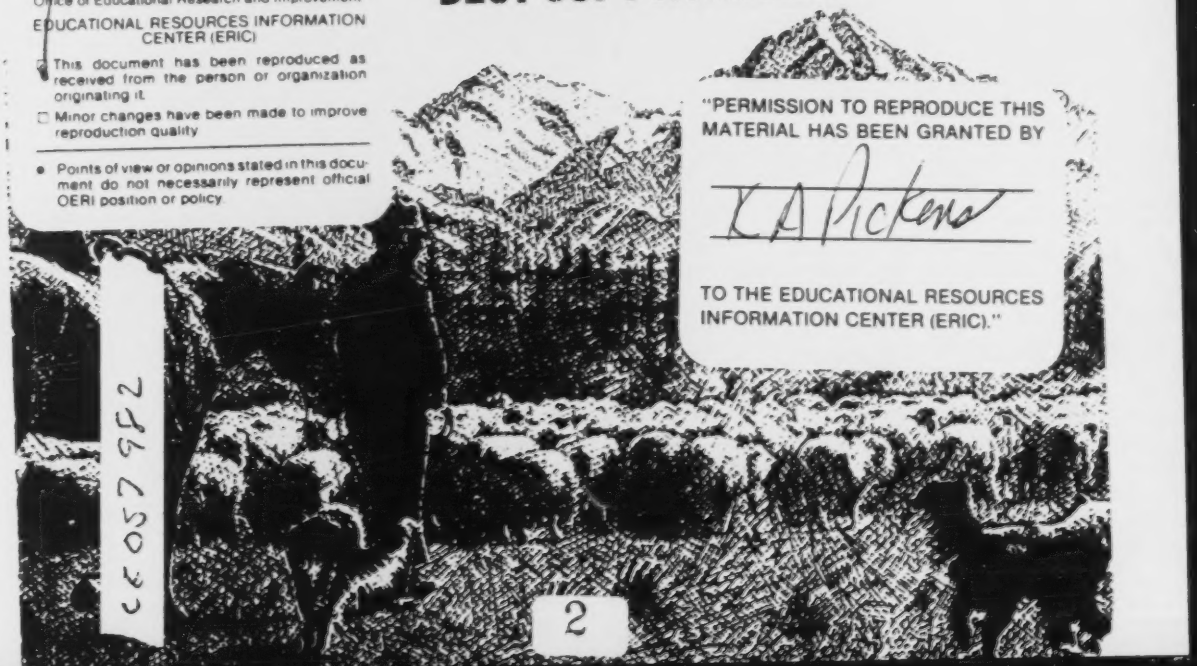
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

K A Pickens

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CE057962



CE

LEARNING ON THE FARM

Studies in Education Series, No. 51

LEARNING ON THE FARM

The Educational Background and Needs of New Zealand Farmers

Ken Moore

New Zealand Council
for Educational Research
Wellington

1990

4

New Zealand Council for Educational Research
P.O. Box 3237
Wellington
New Zealand

©NZCER, 1990

ISSN 0111-2422
ISBN 0-908567-94-4

Printed by Sovereign Print, Christchurch

Contents

Preface 1

Summary of the Research Findings 5

Chapter 1 The Survey 7

Gathering the data 7
Deciding who to interview 7
Selection of the survey area 8
Number surveyed 8
The interviews 8
Questionnaire design 10

Chapter 2 Context of the Survey 12

Locality of the survey area 12
Local centres and servicing 12
Farm size 13
Farm development 14
Farm ownership 14
People on the farms 14
Farmer age 15
Time spent in farming 15
On-farm and off-farm employment 15
On-farm 15
Off-farm 17
General comments about farmers in the area 17

Chapter 3 Educational Profile of the Survey Population 18

Schooling 18
Men 18
Women 20
Education for the children 22

Chapter 4 Reading Review 23

Background to agricultural education and training 23
Training currently available in New Zealand 24
Attitudes towards farmer training 24
Agricultural education – voices from the past 27
Training at tertiary and continuing education levels 32
Australian initiatives in agricultural education 34
Farmer training – recent emphases 35
Tertiary training for farmers in New Zealand 37
The Agricultural Training Council 39

Chapter 5 Sources of Information, Advice and Training 40

Staying up-to-date 41
Preferred ways of staying up-to-date 41
Seeking advice and meeting learning needs 42
Sources as presented to interviewees 43
Measuring farmer awareness of information, advice and training sources 44
The awareness index 44
Detailed comment 46
Farmer awareness indices 48

Chapter 6 Learning Environments 49

Chapter 7 General Farm Management Practices 54

Question responses 54

Chapter 8 Financial Practices and Management 59

Financial control 59
Budgeting 60
Farm management index 61
Management index and education 62

Chapter 9 Discussion Related to the Survey 65

The current situation 65
Changes in farming 66
Pasture species 66
Labour 66
The availability and cost of advice 67
Profit margins and change 68
Learning environments 69

Chapter 10 Cognition (Thought Processing) and Farmer Learning 70

Farmer learning difficulties 71
Improving the communication 73

Recommendations 75

A Future Outlook 77

Bibliography 79

Appendices 87

Appendix A Learning environments 87
Appendix B The management index 87
Appendix C Needs and sources mentioned 89
Appendix D Important events and reports 1970-1990 90
Appendix E Facilities and services lost to farmer training 91
Appendix F Servicing, assistance and recognition farmer training has never had 91
Appendix G Management index/school attainment figure 92

Questionnaire 93

Tables

1 General Farm Summary 13
2 Labour Type and Units 16
3 Male Farmers' Years of Secondary Schooling 19
4 School Qualifications of Male Farmers 19
5 Ranking and Total Mentions for the Different Sources of Information, Advice and Training 45
6 Summary of Comparison Between Two 1988 Farmer Training Events 50
7 Preferred Learning Environments 51
8 Choices of Information Source According to Farmer Category 53
9 Stock Fodder Areas (Turnips, Rape, Cereals, Short Rotation Ryegrass) 56
10 Cash Crop Areas (Worked for Cereals, Small seeds, Pulses and Other Legumes) 56
11 Likelihood of Management Change Occurring 57
12 Average Management Index by Secondary School Attainment 62

13 Average Management Index by Type of Tertiary Training 63
14 Distribution of Management Indices by Secondary School Attainment 64

Appendix Table

C1 Needs and Sources Mentioned 89

Figure

G1 Management Index/School Attainment 92

Preface

The motivation to do this research came in the early 1980s when farming students scoffed at the use of scales to weigh sheep with the question, 'Who uses scales'?

Eight years later over half the farmers surveyed own and use sheep scales, not so much for selecting breeding flock replacements, or for feed monitoring, as for weighing lambs destined for the freezing works. Scales help identify lambs before they get too fat, and overfat lambs are heavily discounted now.

There were other reasons for wondering why so many of the recommendations made to farmers fell on deaf ears.

Two years at a Farmer Training Centre in Tanzania helped me realise how difficult it was to communicate new farming methods with a limited vocabulary. In Tanzania tribespeople use the trade language, Swahili, to communicate with other tribal groups. I was able to talk with them because their Swahili was so basic but, because my vocabulary and grammar were limited, I had difficulty understanding the Swahili language farmer newspaper. Perhaps the traditional conservatism of farmers results partly from ineffective communication between technological experts and the less articulate farming community.

Lincoln College Farmer Surveys have shown that about 20 percent of farmers have some kind of tertiary training in agriculture. A Lincoln College Masters thesis showed that 30 percent of farmers in a North Canterbury community used the MAF's services (when there were no charges). Most farmers I spoke to had never heard about polytechnics teaching farming (Lincoln and Massey universities did that), and they found it hard to believe that more people were trained for farming through the polytechnics than the universities.

I noticed with chagrin that my New Zealand farming students had a deep-seated aversion to reading notes provided in class. Nor did they want to write down the main points of a day's farming topic. I couldn't help wondering that if this group (60 percent farmers' sons and daughters) were at all like their fathers, then many farmers must have problems with printed material too.

The farming newspapers regularly print farmer success stories. I wondered what the rest of the farming community were like, and how they found out about new ideas and applied new techniques.

Well aware that my target farmers would be feeling the financial restraints, I braced myself and began to interview. It has been a privilege to share in the lives of so many people, and to learn so much about their educational backgrounds, experiences and aspirations.

It has been stressful, and at times nerve-racking, but with a 93 percent coverage of a diverse farming area, I believe I have answered questions such as, 'Who is out there on the farms?', and 'What is their educational background?'.

With farming student numbers dropping dramatically, MAFTech charging out their services and fewer farmers attending field days, providing suitable, well-targeted training for farmers is becoming increasingly urgent.

Traditionally, farmer training in New Zealand has been heavily reliant on the informal rather than the formal approach. The significant downturn of new entrants into farming in the past few years only makes the need stronger for an even better training system for the new wave of would-be farmers when young people return to the land.

I hope that material from this survey will help us, the trainers of current and future farmers, to provide appropriately targeted, comprehensive training for people choosing to farm our land.

I am particularly grateful to John Greer (MAF), who helped with interview planning, and to John Fairweather (Lincoln College), who gave valuable advice relating to questionnaire design and testing.

Without the fellowship grant from the J.R. McKenzie Trust, the research would have remained a dream. I am very grateful for the opportunity offered by this fellowship to answer some of the pressing questions asked above, and to investigate farmer learning both in the field and through reading. It was good to have the confidence of the J.R. McKenzie Trust in supporting research relating to farming when the industry was under such economic pressure.

I am very grateful, too, for the direction, support and encouragement given by Dr Geraldine McDonald of the New Zealand Council of Educational Research. Dr McDonald's meticulous reading of the report draft, and her suggestions relating to wording and ordering of the material have been invaluable. My thanks also to Mrs Trish

Hepburn (NZCER), who typed the report for final editing and printing.

I am particularly grateful to the more than 150 farming men and women who gave generously of their time to participate and provide the very personal information upon which this survey is based.

Ken Moore
Christchurch, 1990

Summary of the Research Findings

One hundred and ten Malvern County (Central Canterbury) farmers were interviewed over a three-month period in 1988 to discover how they had learned to farm and what were their preferred methods of staying up-to-date with developments in farming.

Questions were asked about the educational background and current management practices of farmers, to see if any relationship existed, and about training for younger people entering farming to discern attitudes towards such training.

The 93 percent coverage achieved greatly reduces the possibility of sampling error within the survey area. Farmers surveyed lived within 20 minutes' drive of Darfield with its Ministry of Agriculture and Fisheries (MAF) office, and under an hour from Christchurch and Lincoln College, so problems relating to information and advice *accessibility* should have been minimal.

Answers to questions relating to management showed the extent to which certain practices are carried out by farmers in a closely defined area.

The survey shows that:

* *few people entering farming undergo formal training for the job.*
* *less than one-third of farmers seek advice directly from the MAF.*
* *farmers have little time to spend in off-farm training.*
* *a majority of farmers rely heavily on other farmers for advice.*
* *farmers much prefer small group learning/training environments in which they can question, discuss and debate, to a university style lecture setting.*
* *most farmers continue to put local knowledge, the willingness to work hard (for extended hours) and the ability to work reliably without close supervision ahead of trade or university qualifications in farming when listing the important characteristics for a farm manager.*
* *sheep and cropping farmers wonder about the viability of their industry and many are discouraging their own children from a farming career.*

* *rather more farming women than men have received tertiary training.*

The survey analysis shows a direct relationship between length of schooling and the extent to which management practices are carried out.

CHAPTER 1

The Survey

Gathering the data

An interview method was considered best for the following reasons:

1. A face-to-face setting seemed most likely to put the farmers at ease.
2. It was anticipated that some people might not find reading/writing easy, and a personal interview would overcome this.
3. Some of the questions related to sensitive areas that might not have been answered in a postal survey or might even have led to the whole questionnaire being discarded.
4. The farm visit required to conduct the interview would provide an opportunity to gather additional information informally.
5. The refusal rate for interviews is generally lower than for postal surveys.

Deciding who to interview

A blanket survey of a small, representative area was chosen, rather than a random survey of a much larger area, for the following reasons:

1. People reluctant to participate would be more likely to take part if they knew everyone in the district was likely to be involved.
2. Sampling error within the survey area would be very low if most people were interviewed.
3. A community picture could be built up as the interviewing progressed.
4. Additional information would be provided by the commentaries of neighbours on similar topics.
5. Travel could be kept to a minimum.

6. Other possible differences (such as the distances of properties from Christchurch) would be avoided for the farms surveyed.

Selection of the survey area

An area that met the following criteria was required:

1. The farms had to be easily accessible so that a minimum of 100 interviews could be carried out in the time available.
2. It needed to contain a good range of farm types.
3. Farmers should have easy access to services such as an accountant, a bank, MAF, the Department of Scientific and Industrial Research (DSIR), a veterinarian and be able to attend a range of field days and seminars. It was also desirable that farmers should be within easy travel distance from Lincoln College, the agricultural college associated with Canterbury University.[1]

Number surveyed

The target was a minimum of 100 interviews with farmers. A study of progressive results for the 1986 Lincoln College Farmer Survey (Pryde and McCartin received around 1500 responses from a national postal survey of farmers) indicated that the major trends of the responses were apparent once the first 100 responses received had been analysed.

A time limit of 12 weeks for interviewing was also a factor in setting an upper limit on the number of interviews. It became clear once interviewing began that 12 interviews a week was about all that could be managed.

The interviews

Farmers were identified from a farmer location map and their names and addresses sent to NZCER who sent a letter, over the director's signature, introducing the researcher. The letter invited farmers to take part in the survey.

Of the 118 farmers approached, 110 were willing to be interviewed,

1. Lincoln College has just received independent university status, and is now named Lincoln University.

a response rate of 93 percent (for comparison, the postal Lincoln College Farmer Opinion Survey 1986 had a 57 percent return rate). The farmers who did not take part in the survey were people about whom nothing was known but it was possible to gain enough information, both directly and indirectly, to conclude that their omission from the survey would have little effect on the final analysis.

Interview times were arranged over the telephone. Although a majority of farmers were willing to co-operate, some pointed out that it was an inconvenience. Others had to be encouraged to take part after expressing some reluctance. Eight people refused. Three of these were hostile to the project, two were in the process of selling up, two older farmers felt they had nothing of value to offer despite reassurances to the contrary and one man who initially agreed to an interview pulled out after a subsequent discussion with his wife. Five farmers on the edges of the survey area were added to the interview sample to compensate for the refusals.

Interviews lasted between an hour and an hour and a quarter (the shortest was 40 minutes, the longest was two hours). Coding and editing the interview and travel to the next interview took about 30 minutes. Five interviews a day were made on two occasions, but this proved to be rather a heavy load.

It was impossible to make neat daily timetables because farmers were busy drilling crops and lambing their flocks. Nevertheless, many farmers put themselves out in order to be available for interview. In the end only two farmers forgot their interview times, and three other interviews had to be postponed. One interview was by phone with a farmer who was called away as the face-to-face interview was about to start.

Most interviews were carried out at the kitchen table, or in the living room. Three took place in woolsheds and five around the farm. Over half the interviews were carried out with the farmer's wife present. Such interviews generally revealed more about the farm and farming family than interviews with the man alone. Many couples appeared to enjoy the interview and the opportunity it gave them to discuss life on the farm.

Every interview begun was successfully completed. Occasionally a man felt that an interview question was threatening or that his wife was challenging his responses. A few farmers, who began the interview rather grudgingly, found the experience personally rewarding and soon forgot how pressed they were for time.

None of the farmers surveyed was more than 50 minutes' travel from Lincoln College, the DSIR or MAFTech's major Lincoln base. All lived within 20 minutes' drive of Darfield with its excellent veterinary service (the Malvern Farmers' Vet Club) and a MAFTech District Office with two experienced advisers. Very few farms were more than 3 km on shingle from a sealed main road, and many had seal to the gate. Farms were served by local Darfield stock and station agents in addition to those based in Christchurch.

Questionnaire design

The basic question was, 'How do farmers learn?' A second was, 'How can both existing and future farmers be trained more effectively?' These two questions generated the following research questions.

1. What kinds of education did members of the farming community surveyed have?
2. How do farmers like to keep up-to-date with developments in farming?
3. How do farmers stay up-to-date?
4. In what kinds of learning environments do these farmers feel most at ease?
5. To what extent do farmers carry out (selected) recommended financial and general farm management practices?
6. What are the farmers' attitudes towards tertiary training for people going farming?
7. Who will replace existing farmers as they retire?
8. To what extent are women involved in work on farms?
9. How much labour do the farms employ?

These queries were expanded into a series of interwoven interview questions. Questions containing information that might affect answers to other questions that relied on farmer recall, knowledge or experience, came later in the questionnaire. Some questions were indirect in order to reduce the risk of any personal threat that could

have coloured the responses. Certain question sequences moved from the general to the specific for this same reason.

The questionnaire was trialled on six properties (dryland sheep, irrigated sheep, intensive mixed cropping, hill country sheep and beef, a father and son partnership sheep farm and a mixed cropping farm worked by a farm manager) to test and modify questions and to find out typical responses for pre-coding the questionnaire itself.

Apart from one question, removed soon after interviews began, the questionnaire worked well. Farmers responded readily, with every one of the farm owners interviewed answering the final optional question relating to debt servicing. Question probes were used only when a question was misunderstood, or when the answer seemed inappropriate or unrelated to the question.

Completed questionnaires were numbered but not named to retain full confidentiality. Some information was recorded on the questionnaire sheets immediately after the interview. Pre-coding questionnaires reduced the amount of writing needed, and gave the interviewer more time to concentrate on listening to the farmer and maintaining eye contact. This was particularly important in view of the conditions in farming at the time – financial pressure and drought. Many of the respondents were under stress and some expressed doubts as to the usefulness of the survey, or the willingness of the government to take any notice of it anyway.

CHAPTER 2

Context of the Survey

Locality of survey area

Situated in Central Canterbury, the survey area had for its northern boundary the Main Coast Road from Kirwee to Sheffield. Bounded to the south by the Bealey Road and the Hororata River, it stretched from Charing Cross in the east to Glenroy and Whitecliffs in the west.

The actual farmland controlled by the people surveyed covered an area of 248 sq km, comprising 105 separate holdings. These ranged in size from 7 to 920ha. All the farmers surveyed lived between 40 minutes' and an hour's travel time from Christchurch.

The Selwyn, Waireka and Hawkins Rivers run across the area, and this has led to a wide variation in soil types on individual farms. A handful of farms near Darfield have wells, but most farms are not irrigated. Soils range from light and stony in the east to heavy clays in the western hills. Topography alters from flat plain land to the Glenroy Downs and the rugged hills around Whitecliffs.

Local centres and servicing

The local centres (in order of size with km from Christchurch in brackets) are Darfield (45), Sheffield (59), Hororata (56), Glentunnel (58), Coalgate (56) and Whitecliffs (64). Two smaller localities, Glenroy (70) and Homebush (53), lack the small clumping of houses which characterise a village like Glentunnel. There are contributing primary schools at Hororata, Glentunnel, Glenroy, Homebush and Sheffield with buses taking Form 1 to 7 pupils to the Darfield High School. Darfield and Hororata have playcentres. There are licensed hotels in Darfield, Sheffield, Coalgate and Hororata. Darfield is the centre of local government. The only Post Office is in Darfield; other towns have postal centres at local stores. There is a Trust Bank in Darfield and one trading bank has a part-time agency.

The MAF has an office in Darfield with two advisory officers. Both stock and station firms have retail branches there and the Malvern Veterinary Club employs four vets. Darfield has a medical centre staffed by several doctors, and the locals are fighting to keep the Darfield Hospital open.

Darfield, Sheffield, Coalgate and Hororata have service stations. Darfield also has an autoelectrician and a secondhand farm machinery sales yard. The country villages have struggling general stores. Darfield has a supermarket, a good stationery shop, clothing stores, butchers and several dairies.

Table 1
General Farm Summary

Farm type	Total area (ha)		Labour units		Stock units	
	Number	%	Number	%	Number	%
Sheep	6,670	27	43	28	70,115	33
Mixed crop	9,073	37	66	42	59,333	28
Sheep/beef	6,551	26	31	20	64,025	29
Sheep/one Other	1,527	6	8	5	12,720	6
Other	963	4	8	5	8,310	4
Total	24,784	100	156	100	214,503	100

'Other' farms include all deer, all goats, or a mix of sheep, cattle, goats, horses and pigs. Parrots and angora rabbits were sidelines on farms encountered during the survey. An apple orchardist, two pig farmers and two poultry farmers in the locality were not interviewed. The only dairy farm in the district lay outside the survey area.

Farm size

The Malvern County rules regarding subdivision have changed recently, and a number of farm cottages have been sold with a hectare or two of land. Larger blocks have also been sold increasing the number of small-block holders to the point at which there are numerous holdings of 50ha or less (there were 12 of these in the survey).

Thirty-five percent of the holdings seemed too small to be economically viable family units. Of the 20 holdings under 100ha, four were retirement blocks, and off-farm work by one or both marriage

partners was supplementing the income from another 15 holdings. Thirty-three percent of the farms between 100 and 199ha in area had one or both marriage partners earning off-farm income.

Farm development

Significant developmental work had been carried out over the past 20 years on 57 percent of the farms, some work on another 23 percent and development had stood still on only 10 percent of the properties.

Fifty-six percent of the respondents said they had had to postpone needed development work because of the current economic downturn. Most major development work had already been carried out. Only 14 percent of the group who had postponed work said that there was still significant development work to do on their farms.

Farm ownership

Approximately 44 percent of farms were owned as partnerships, 26 percent were sole ownership, 10 percent were managed or leased and the remaining 20 percent were owned in other ways.

For 35 percent of the owners their land had been owned by the family for three or more generations, 24 percent were second generation on the farm, and 40 percent were first generation.

None of the farms surveyed had women in sole charge, but women played a significant part in running the properties.

People on the farms

There were 92 married couples with a total of 260 children. Nearly 100 of these children had left to live beyond the survey area. A number of farms were run by bachelors.

This gave the totals of 116 men, 109 women and 160 children living on the farms, a farmland population density of 1.55 people per sq km (four people per square mile).

The average family size was five, and the range went from no children to five. Forty-five percent of families had pre-school or primary-aged children, 26 percent had adult families, 24 percent had children in between and there were five couples without children. The large number of younger families can be accounted for in part, by the influx of small-block holders in the Hororata-Glenroy area, and in part by a tendency for farmers to marry later than their urban cousins.

Farmer age

The Lincoln College Farmer Survey has for the past 10 years given the average farmer's age as 45 years. The average age of the farmers in this survey was 42. The average age for farmers with holdings between 100 and 200ha was 44 years (range 27 to 59); those running farms over 300ha averaged 38 years of age (range 24 to 59).

The largest age group was the 25- to 34-year olds which made up 29 percent of those surveyed. Twenty-four percent were aged from 35 to 44 and 27 percent from 45 to 54. Those under 25 accounted for only 3 percent and those over 54 for 17 percent.

A work index was calculated, for which 100ha cropped land per labour unit *or* 3000 stock units per labour unit was regarded as equal to 100 (a stock unit, abbreviated SU, is the animal equivalent of a 55kg ewe raising one lamb during the year). The mean value for the work index for all farms was 68. Those farmers scoring under 60 on the work index averaged 45 years of age, while those with an index over 100 averaged 39 years of age.

Nine farmers over the age of 50 had what were in effect semi-retirement-sized holdings. Several of these people were having to work off-farm to supplement their farm income.

Time spent in farming

Most farmers had been working on farms all their lives, so the pattern of time spent farming closely resembled the distribution pattern for farmers' age. Contrasting sharply with this was the time spent by farmers in a position of management control. Fifty-two percent had had control of their properties for less than 10 years. Twenty-one percent had been in control for one to five years, 29 percent for six to 10 years, yet only 11 percent for each of the 11 to 15, 16 to 20 and 21 to 25 year periods.

On-farm and off-farm employment

On-farm

Thirty-two percent of the farms employed outside labour but only 14 percent had fulltime staff. Another 16 percent received help from a family member, normally a semi-retired father. Some farmers worked with neighbours on a reciprocal basis (e.g. at tailing time).

Eight farms employed one full labour unit and five employed two additional people fulltime.

The following summary (Table 2) equates a fulltime farmer with a labour unit. Many farmers would work 60 hours or more a week, but information about total hours worked each week was not obtained. Even if farmers did not work significantly longer than their farm workers they would be more likely to work at any time, day or night, and in the weekends.

Table 2
Labour Type and Units

Labour type	Units	%
Farmers (male)	101	64
Farming wives	19	12
Employees	32	20
Family help	7	4
	159	100

The average-sized farm employing a part labour unit was 261ha, and for a farm employing one or more extra people it was 454ha.

Most of the large farms operated either as a family partnership or employed a manager with one or two hired hands.

Forty percent of farming wives helped out at busy times, 33 percent helped with most farm tasks and 7 percent were prepared to help with anything. Nine percent helped with stock work and another 8 percent contributed most by doing farm office work. Eighty percent of the farmers felt their wives were doing as much as could be expected of them, with six farmers wishing their wives could help more with office work and two wanting more help with stock.

A fuller involvement in farm work by 47 percent of wives was limited by family care and playcentre/school/community responsibilities. Off-farm jobs restricted another 23 percent. Other reasons given for limited involvement on-farm were ill health, not willing/trained/brought up to do it, already fully involved, sons/hired labour do all the work, a manager's wife not paid to work on the farm, and the woman had retired.

Off-farm

Twenty-three men and 21 women (from a total of 36 properties) worked off-farm. Thirteen of these people had fulltime jobs. Another 11.5 fulltime job equivalents were worked by the rest. Those working off-farm averaged 20 hours per week (men) and 25 hours per week (women).

Some people worked regular part-time hours, and others had seasonal jobs. Most part-time women's jobs were in hospitals, schools, banks and retail shops. Men generally worked on other farms. One farmer had a singing spot in a restaurant while another worked on a ski-field during the winter. Several others did contract harvesting or cultivation. Small-block holders were working part-time for farmers who had until recently employed a full labour unit.

Most of the fulltime jobs were out of the area, with eight people travelling daily to Christchurch and one to Rakaia. Two others travelled to Christchurch to work in part-time jobs. More off-farm work would have been carried out had it been available.

General comments about the farmers in the area

Much of the area surveyed had once been part of the Homebush, Waireka, Bangor and Racecourse Hill Canterbury runs. Some of the present farmers were descended from these runholders or their employees. Other farms had been in the family for several generations, which meant a valuable resource of local knowledge about land and climatic patterns.

Most of the farms are drought prone, and older farmers have learnt to farm conservatively in order to reduce the effect of the inevitable dry year. They were very critical of the younger, new entrants into the district, and sceptical of the 'Lincoln College types' who had, they said, been encouraged to farm to the limit. But even these veterans, with little or no debt servicing, were finding times hard.

Some of the people rated high on the management index (see later) were also quite exposed in terms of farm indebtedness. For most farmers farming was not just a 'way of life'; it *was* their life, and they loved it. A few felt trapped in a vocation they would rather leave but only two said they didn't enjoy farming. Seventy-two percent of farmers interviewed hoped to be still farming their land in five years' time.

CHAPTER 3

Educational Profile of the Survey Population

Schooling

Few of the older farmers had more than two years' secondary education; five had less than one year's secondary schooling or none at all. The original Darfield High School was closed down over 50 years ago, so it is hardly surprising that most older farmers said they went to boarding school, or stayed in Christchurch to attend secondary school. Darfield area students travelling to town each day on bus or train missed the first hour of school. A district high school was not opened in Darfield until the early 1950s.

Most of the farming women had had an urban upbringing and easy access to high schools. Today the farms are on or near school bus routes to the contributing schools and Darfield High School. Twenty percent of families said they would like to send their children to boarding school, although several were hoping to see how 'things improved' at the local high school, and some wondered whether they would be able to afford to board their children when the time came.

Men

Table 3 shows the length of secondary schooling for the men.

Eighty percent of the under 40-year-olds stayed at school for at least three years. Table 4 shows the qualifications gained.

Some of the farmers over 50 years of age said they had left school early to take on the running of the farm, but this was rare in the under 40-year-old age group.

The farmers differed widely in the extent to which they had undertaken further study after leaving school. Forty percent had done no further formal study. Twenty-two percent had taken courses in farm-

Table 3

Male Farmers' Years of Secondary Schooling

Years	Number	%
5	19	17
4	27	25
3	32	29
Less than 3	31	28
	109	100

Table 4

School Qualifications of Male Farmers

Highest level of school qualification	Number	% (total)	% (under 40s)
Higher School Certificate	9	8	13
University Entrance	21	19	31
Sixth Form Certificate	7	6	11
School Certificate	19	17	11
None	54	49	33
	110	100	100

ing, ranging from a land settlement block course at Telford Farm Training Institute (near Balclutha) to an agricultural science degree at Lincoln College, and the remainder (38 percent) had trained in a variety of other ways.

Other types of training (with numbers in brackets) included courses in welding (7), carpentry (4), wool classing (4), shearing (4), artificial insemination (4), farm accounting/budgeting (4), correspondence farming (4), horticulture (1), farm forestry (10), Lincoln College short course (2), farm computing (2), pilot's licence (2), real estate (1), fitting and turning (1), drainlaying (1), the army (1), loghouse construction (1), communication skills (1) and theology (2).

Lincoln College courses taken (numbers in brackets) were B.Agr.

Sc. (4), B.Ag. Com. (1), Diploma in Valuations and Farm Management (2), intensive one-year Certificate in Ag. (1), Dip.Ag. (3). Two farmers of those interviewed had law and accountancy degrees respectively. One man had done the one-year course at Telford, another had the Canterbury Farm Worker's Certificate. Four had been on residential short courses at Telford.

Farm employees not interviewed had qualifications ranging from B.Ag. Com. to the Trades Certification Board qualifications in Farming and Farm Management.

Of those interviewed, only 12 percent had gained recognised tertiary qualifications in agriculture but a further 17 percent had post-secondary training for work related to agriculture.

Sixty-nine percent did not feel that commitment to farm or family had prevented them from carrying out further farming study. Thirty-one percent felt that their commitments had indeed kept them away from studying. Some of these people expressed disappointment that by leaving school early to take on the running of the family farm they had missed out on opportunities to gain experience elsewhere or perhaps to study at Lincoln College.

Those who said they would have liked to have done further study mentioned the following areas of interest (number of mentions in brackets): general farm management (7), farm finances/office (6), plant and animal husbandries (5), wool (2), and one each of pasture management, marketing, stock management, soils, engineering, viticulture, retirement and leadership.

Women

Twenty-five percent of the women had not obtained a school qualification, 26 percent had School Certificate, 9 percent Sixth Form Certificate, 30 percent University Entrance and a further 9 percent had completed the 7th Form year.

Sixty-two percent of the women had undertaken some tertiary training (men 30 percent), the rest had learnt on the job. Forty-five percent had a tertiary qualification (men 26 percent) including six women with university degrees.

Thirty-two percent of the women expressed an interest in further learning. Subject areas mentioned by these women (with number of mentions in brackets) were farm finance/office (14), nursing (4), crafts (3), accountancy (2), communication skills (2), counselling (2), animal

husbandries (2), arts (2), Massey extramural (2), and leadership, business, hairdressing, community care, photography, remedial reading, playcentre supervising, spinning, music, word processing, psychology, psychotherapy, horticulture and cooking (all one mention).

In 1975 a national survey of rural women was carried out by the Women's Division of the Federated Farmers assisted by the Canterbury University Sociology Department. This showed that for rural couples, 27 percent of the wives had a better school education than their husbands, and that 14 percent of the husbands had a better education than their wives. The remaining 59 percent were educated equally.

In the current survey, 40 percent of the women had a better secondary education than their husbands, 14 percent of the husbands were better educated than their wives and 46 percent had a similar level of education. City-raised nurses, teachers and businesswomen meet and marry farmers, 57 percent (current survey figure) of whom leave school by the end of their third year.

Continuing the comparison (national survey figures in brackets), 26 percent (34 percent) of farmers in the current survey had gained some kind of tertiary qualification, while 54 percent (40 percent) of the women had done so. The trend for more women in the present sample to have received tertiary training is not replicated in the figures for the men surveyed.

Less than 10 percent of the women surveyed had grown up on farms. The women whom farmers meet and marry are frequently nurses, teachers and office/retail staff who have moved out to positions in rural areas. Rural young women move into the city to train and find employment, where they marry and settle.

Although some women had not had any break from work, most had left their jobs to marry or left on the birth of a child. Thirty percent had worked in offices and banks, 22 percent were trained nurses (registered, Karitane, dental), 15 percent were teachers, 6 percent worked in retailing and 3 percent were from farms. Another 24 percent had had jobs such as receptionist, telephonist, milliner, embroiderer, gardener, accountant, library assistant, nanny, ordained minister, hairdresser, doctor, interpreter, piano teacher, radiographer, dressmaker, scientist, machinist and science technician.

The national survey showed that women took little interest in farm husbandries (less than 1 percent), although a higher percentage (21

percent) were interested in commercial courses. These proportions were 2 percent and 17 percent respectively for the current survey. This may be because few women feel that they have much input into the husbandry side of the farm, but do see a role for themselves in the farm office.

Education for the children

Twenty percent of the families want to send their children to boarding school if possible. Most parents would encourage their children to get an advanced education in order to fit them for work.

Fifteen percent spoke in terms of three, four and even five years at secondary school for their children, while 51 percent suggested polytechnic level training and 34 percent a university education. Most added that they would not force a child to stay on at, or beyond, secondary school if the child was not willing or able enough to cope with that level of study.

CHAPTER 4

Reading Review

Background to agricultural education and training

The following section provides an introduction and a background to farmer training in New Zealand.

Agricultural education over the past century has been characterised by a general reluctance on the part of farmers to train in any formal sense of the word, and by the apparent failure of agricultural training institutions to communicate effectively with farmers who have learnt farming by farming.

Very little work has been done on studying farmer learning in New Zealand. Most post-graduate work on agricultural education has been carried out by non-agriculturalists in the course of gaining an MA degree and, in one instance, a PhD. The theses deal mainly with agricultural training at a secondary level. Work on the same topic carried out by agriculturalists covers discussion groups, the diffusion of innovations within the farming community and the use by farmers of MAF services.

The Lincoln College library has over 1000 Lincoln post-graduate theses and dissertations presented to Lincoln College but only seven are catalogued in the agricultural extension section. Most Lincoln graduates join the agricultural advisory services with a first-level degree and train on the job. Few return to university for post-graduate work in agricultural extension.

Lincoln College and Massey University have a fourth-year optional course on farm extension but there is no New Zealand equivalent for the post-graduate Diploma in Agricultural Extension course that has been run at Melbourne University. The Australians have done much valuable work, mostly through the Melbourne University School of Agriculture and Forestry. Department of Agriculture advisers studying for the Diploma in Agricultural Extension have investigated sources of information and farmer reading habits quite carefully. Most of this research has been undertaken by people who are

themselves extension workers rather than by educationalists. The population samples have generally been small and this limits the significance of the findings although some larger scale, in-depth studies have been carried out since 1970 by Melbourne University staff.

Lincoln College was established in 1880, but few degrees were conferred until the 1920s. Massey University was founded principally because of a shortage of agricultural graduates. While the two institutions are primarily engaged in graduate teaching in agriculturally related courses, both also offer agricultural diploma courses. Students completing university courses in agriculture who then go farming constitute less than 5 percent of those who enter farming.

Training currently available in New Zealand for people wishing to train for or receive continuing education in farming

* University degrees in agricultural science and commerce;
* University diplomas in agriculture and farm management;
* Trades Certification Board certificates in Farming and Farm Business Management (part-time study);
* Polytechnic certificates in farming and farm management (fulltime study);
* Training farm certificates (e.g. Taratahi farm in the Wairarapa offering a very practical farm training for young people beginning farming);
* Short courses (run by the MAF at Flock House, and by polytechnics and universities);
* Field days and seminars offered by the MAF, universities, polytechnics, stock and station agencies, breed societies, veterinary clubs and professional societies;
* Farm Cadet Schemes using farmers for on-farm training and polytechnic distance or day-release study.

Attitudes towards farmer training

In 1900 few rural children progressed beyond primary school. Their

teachers came from urban environments, and pupils were schooled along classical lines. Grounded in the three Rs, these pupils returned home to learn farming from father. Schooling and farming had little or nothing in common.

Secondary school, for those who went on to this level, generally had little to do with farming either. A few schools, like Rangiora High School and Ashburton High School, had school farms, but students left school too soon really to benefit from these. The more able students generally took more academic subjects. Ashburton High School sold its farm 50 years ago, and agriculture has not been in the curriculum since. A number of South Island high schools (Rangiora, St Andrews, the Taieri, Waitaki Boys, Gore and Southland Boys) and the likes of Feilding Agricultural High School in the North Island, ran agriculture courses, but these schools were a minority.

The attitude that education and farming are necessarily separate seems deeply ingrained. Farming is associated with hard work, honesty, good practical skills and being a real man. New Zealand farmers, with fierce pride in their practical prowess, have changed a countryside that was mainly bush and swamp into productive farmland. This pioneer spirit works against farmers when they fail to recognise the value of institutional training to gain both an academic understanding of farming and practical skills for the job.

Farmers, with practical skills gained over a lifetime, are being swept from their farms as increasing costs and high rates of interest drive them into bankruptcy. National training institutions, geared up to train around 10 percent of those who enter farming, may be ill prepared to cope with retraining the older farming survivors *and* the wave of younger people coming into farming in the 1990s.

Beginning in the late 1940s the New Zealand Technical Correspondence Institute (NZTCI) offered courses in farming. By the early 1970s the Trades Certification Board had developed prescriptions for certificates in farming and farm management. These courses, only possible at first from the NZTCI, were then offered by other technical institutes (now called polytechnics) on a day-release basis (usually one class day each fortnight). Students taking the trade farming courses quickly outnumbered those studying for a farming career at Lincoln College or Massey University.

In 1983 more than 500 farming people entered for the Trades Certification Board (TCB) Farm Management course first-year examination papers. Students completing trade courses in agriculture in the

mid-1980s composed around 10 percent of all those embarking on farming careers.

The Land Settlement Scheme farm ballots encouraged many farming people who wanted help to enter farming to study through the polytechnics, universities and farm training institutes' land settlement block courses. The number of people studying farm management has fallen dramatically since the farm ballots ceased. The cost of providing one-year courses at the farm training institutes rose so much with the introduction of full cost recovery that at Flock House the course length has been greatly reduced, and the training responsibility has passed from MAF to the Ministry of Education. The courses give young people a good start towards learning farming, but further training in farm management is necessary. Telford ran a one-year course in 1989, but the numbers of applicants fell dramatically with the increase in fees. Polytechnics now offer fulltime courses ranging from 15 weeks to a whole year in length.

The farm training institutes (advocated in 1958 by the Consultative Committee on Agricultural Education to provide one-year practical and academic training for school leavers, and set up at Flock House and Telford) continue to offer short block courses for established farmers. The once popular week-long Lincoln College Farmers' Conferences have given way to localised one- or two-day seminars on specialist topics.

The Farm Cadet Scheme, run by Federated Farmers with funding from MAF, has provided support and encouragement for thousands of aspiring young farmers. The schemes require farm cadets to study for their trade certificates as they complete a minimum of three years' practical farming under the supervision of approved farmer trainers. Farm cadets totalled 1600 in 1985 but this number had fallen to just over 1000 by 1988. This accounts for approximately 1 percent of the farming workforce.

The reliance by the farming industry on farmers to train young people is traditional. The role these farmers play in training is summed up by Sir Allan Wright, past president of Federated Farmers (quoted by A.E. Hyde, ATC, 1983): 'Although formal teaching institutions such as training farms and technical institutes [polytechnics] have an important role to play, the major training resource remains skilled farmers with the interest and the ability to pass on their knowledge to new entrants to the industry.'

Agricultural education – voices from the past

Colonel T. Durant, addressing a Ruakura Farmers' Conference in 1946 said, 'Agriculture has been, and is now, the poor relation, the Cinderella in our educational system.'

In that same year, L.J. Wild, founder of the Feilding Agricultural High School, gave the first Hilgendorf Memorial Lecture at Lincoln: 'The story of agricultural education in the first quarter of the century is a depressing one. Farmers generally were men – or the sons of men – who had won their way, as they believed, entirely by their own enterprise and practical skill.'

R.M. Innes, in his MA thesis (1927) entitled 'The Training of Farmers', quoted a Farmers' Union spokesman at a 1924 conference who maintained that 'educational facilities for persons desiring to engage in rural occupations are hopelessly inadequate'. Innes himself wrote: 'In the beginning I had an idea that there was more instruction carried out, but I soon realised the sources of instruction were so varied... and in most cases their influence so meagre...' And, 'rural primary schools do not in any way attempt to relate their courses of study to the land...[the government] are not making any move to systematise the training of future farm workers...the bulk of the farming population does not receive suitable training.'

In 1931, H.C.D. Somerset, a WEA tutor at Oxford (Canterbury), summed up his frustration at the reluctance of farmers to study by quoting Dr W. Adickes (International Handbook for Adult Education, 1929): 'it is always in times of stress that the countryman is open to suggestions for education... when enmeshed in economic difficulties and despite all his work and duty done he is up against the pricks of ill-fortune, then he has a glimmering sense that other ways must be sought and tried.' Somerset, to be fair, went on to say that 'farmers, who are a class most in need of what the WEA can give, are handicapped by economic conditions and long hours of work'.

Innes felt it was too late to try and change the older farmer, and advocated farming education for the young: 'Farmers in New Zealand are not alive to the value of instruction... Country children should be given... the habit of applying the findings of science to the practice of farming. Upon such a foundation can be imposed the truly vocational knowledge that the Diploma of Agriculture can give to the young farmers at a later stage.'

There seems to be a double thread running through the literature

– one in which the government made little effort to promote agricultural education, and the other suggesting that farmers did not see the need for training anyway. Ronald Vine, writing in the *New Zealand Farmer* magazine about secondary schools in 1956, said 'there is nothing, I believe, in the whole record of agriculture in New Zealand so depressing as the instability, inconsistency and very often the futility of what has come to be called, vaguely, "agricultural education". If professional educationalists have any agreement about how agriculture should be taught in secondary schools they do not express it.'

Those writing the Atmore Report of 1930 would have been bitterly disappointed half a century later. They had recommended that 'there should be organised in the Dominion a wide system of specialised agriculture for those boys and girls who can be attracted from rural, as well as urban areas, to enter upon vocations connected with the soil. The day is past when farming could be considered the one occupation in life where specialised training is unnecessary.'

J.E.Watson, researching an MA thesis on agricultural education in secondary schools in 1947, found that of the 2491 people who entered farming occupations, less than 50 did so via a tertiary training programme. The average length of secondary schooling for boys leaving to farm was two years.

This was much better than during the 1930s when, according to T.H. Scott, Assistant Lecturer in Rural Education at Lincoln College, 65 percent of those going farming left directly from primary school; by 1945 72 percent of those going farming had some secondary schooling.

The Consultative Committee on Agricultural Education of 1958 commented: 'Lack of interest in agricultural instruction on the part of many boys who come from farms may be, and often is, due to the father's assured belief that he can teach them farming at home, and that he wants other things from school.'

G.E. Durney, investigating agricultural education in post-primary schools in 1957, made several interesting observations. He felt that 'early attempts to elevate agriculture as a secondary school subject failed because parents of brighter children favoured academic subjects and agriculture became a dumping ground for less able students intending to leave school as soon as they could.'

Durney advocated education through agriculture. Agricultural education in secondary schools in New Zealand lacked, he claimed, the

vocational emphasis of the USA's vocational agriculture (Vo-Ag) courses, with its Future Farmers of America (FFA) programme. He concluded that 'many of the school leavers who go farming are ill-equipped for agriculture, and are just drifting into the basic industry'.

Durney believed that there should be education through agriculture rather than education for agriculture. This still seems to be the key issue in the debate about agricultural education in secondary schools today. He interviewed agricultural degree and diploma students and found that 'only one in three who could have studied agriculture at secondary school did so'.

The 1958 Consultative Committee Report noted that as early as 1902 there were pleas for a greater emphasis on agriculture in rural schools, but suitably trained teachers were lacking. R.M.D. Harris questioned students in 1959 and found there was little interest in teaching as a career among Massey's agricultural students. In 1962 there were no Massey students on teaching bursaries although there had been seven the year before.

A search of the Secondary School Teachers' Register in 1981 showed that there were between 40 and 50 teachers nationally with graduate qualifications in agriculture and horticulture. In 1962 Harris estimated that 200 teachers would be needed to teach agriculture in New Zealand secondary schools. It is hard to see how Durney's hope for education through agriculture, let alone for agriculture, can occur when so few teachers have a background in agriculture or horticulture.

The historical failure of schools to provide a significant grounding in farming for those planning to become farmers seems likely to continue. Farmer training appears destined to take place mainly at a tertiary or continuing education stage.

Farmer reluctance to participate in formal study may stem from more than the historical separation between schooling and farming education. For some, school represents (academic) failure, and they want no more of it. Success for them is a well-trained dog, or a top line of two-tooths at the local ewe fair. Younger people want to farm, but find it easy to overlook the need for the technical and business training their farmer fathers hardly ever received.

The courses offered may discourage would-be farmers from tertiary study. The teaching methods and learning environments favour the academically able, particularly those coming from an urban environment. In November 1945, Vocational Guidance Officer G.D. Innes

prefaced an article on the Farm Training Scheme of the Canterbury Youth Farm Advisory Council with the following observations: 'National statistics showed that the standard of education of many boys entering farming was appallingly low... taken in conjunction with the drift to town of some of the country-bred youths passing school examinations, these factors could only result in lowered standards of character and intellect among our rural population.'

Hawkins, Almond and Dwyer (1974) in their study, *Post Secondary Educational Needs of Australian Farmers*, pointed out that

> ... studies currently in progress at La Trobe University indicate there are significant differences in language use and cognitive styles (or ways of thinking) between children who have grown up on farms and those from country towns or cities. Farm children, who are accustomed to learning by direct experience, reflect their upbringing in the use of concrete or "iconic" language. Urban children, on the other hand, make much richer use than farm children of "propositional" language in which they refer to relationships between objects and events.

A Northland farmer, looking back on his Lincoln College student days, believed the most important contribution the university had made was in teaching him how to think. It is likely that the university had the urbanising effect on him referred to by Emery and Oeser (1958) who said:

> The attitude to knowledge of members of an agrarian culture differs in important respects from that displayed by members of an urban, industrialised culture. Among the former, knowledge must be achieved and tested by personal practice and experience, and it is handed on from father to son, and between contemporaries, by means of traditional rules and by face-to-face communication. In an urbanised culture, however, knowledge is accepted as being instrumental rather than traditional; as generally or publicly holdable; and as testable by means other than personal practice and experience. It is transmitted by impersonal means, such as books, and by teachers who are institutionally and physically remote from the places of work and production.

Herriot, writing about the early days of Roseworthy College (in South Australia) bears out the farmer attitude to study by saying,'Popular opinion proclaimed that you did not learn farming from professor and books, you learnt it from farming.'

A Garston farmer, M. Naylor, described a typical farmer to the

1970 Agricultural Extension Seminar in his address, 'Farming and Farmers – a Decade Hence'.

> He is a good average farmer, doing a fair job. He realises, probably because he has heard it so many times, that his farm is a business proposition... and realises the need for sound business management. Yet if we were to ask him, "Do you keep physical and financial records?" or "Do you forward plan your finances?", he would likely answer with more than a little embarrassment that he had been thinking about it for some time, and he really intends to get on to it some wet day soon. In a short space of years he has been thrust into an era of big business, and thrust in with little more than a lifetime of experience on the land to help him grapple with a business concept. He hasn't thought about 1980 yet because he hasn't caught up on 1970.
>
> His real problem is that he has never really sat down and established any aims and then gone out to seek the technology to achieve them. His progress is motivated by necessity, rather than by desire. But... who else in this country is manipulating a business... without any formal training whatsoever and at the same time trying to act as his own office boy, typist, technical expert, research officer, manager and cashier? And if he hasn't thought of 1980 and the prospects which might exist for farmers at that time, it is because he is living strictly with the problems of the present. It is inconceivable that he should add to these the uncertainties of the future.

Naylor described the heavy emphasis of the past on the physical, outdoor aspects of farming. He completed his address on an optimistic note, describing the farm businessman of 1980, who would be able and willing to talk about his farm in business terms, comfortably seated in his farm office.

Other agricultural extension seminar participants (1970) expected the farmer a decade hence would be better educated, more adaptable, have a broader knowledge of and a greater orientation toward sound business methods. This farmer would be better able to organise and motivate labour, be less involved in actual farm work and more involved in planning, organising and keeping abreast of technical advances. They expected the average age of farm owners to increase, and that they would be divided into two groups – businesspeople and those operating farms on their own account.

The expected changes are now occurring, two decades later, and it is probably only the demise of the supplemented minimum prices (SMPs) scheme that has precipitated this.

Training at tertiary and continuing education levels

Farquhar, in his book, *Agricultural Education in Australia* (1966), sums up the difficulties facing farmer educators:

> The fact that... over half the total workforce on Australian farms are decision-making producers presents problems for education and training which are very different from most other callings in both magnitude and complexity. We must face a future when all people on the land will need more technical understanding and skills.
>
> ... our system of education and training for farming must aim to produce people who are markedly individuals, who are receptive to new ideas but can think for themselves, who can take rapid and correct decisions, and who have the skills to supervise or do the job themselves. This is the most complex, difficult and neglected field of education and training for agriculture in Australia.

Nalson, in *Consensus and Conflict in Agricultural Education* (1973), emphasises the need for farmer managers with business skills:

> The apprenticeship training of managers through the "jackaroo" system is not conducive to the acquisition of the type of knowledge or approach to and understanding of the large business organisations likely to be necessary for the future integration of production management with business management in these large-scale organisations, nor is it conducive to innovation generally.

Nalson goes on to suggest that

> ... agriculture in Australia has remained viable largely because of the complex and comprehensive infra-structures of servicing occupations which have developed around it. No other industry has such a comprehensive range of state and Commonwealth agencies servicing it... Thus we have a family farming system, with little formal education or specialisation of function amongst its practitioners, encapsulated within and utterly dependent upon an infra-structure of "agri-business" employing highly trained specialists and with worldwide economic, scientific, organisational, and structural linkages. From this mutual interdependence of practitioners and professional stem many of the problems and dilemmas of agricultural education.

While the props of the farming infrastructure remain, farmers are insulated from the seriousness of their technical and business deficiencies. But the props are fast being removed in New Zealand with stock firm restructuring, MAF charging for previously free services, high interest rates and deregulation of parts of the industry.

Nalson highlights another factor working against better farmer education, which he calls the institutional factor. People teaching at a tertiary level get out of touch, unless there are regular refresher courses. Teaching methods can become outmoded. Outlooks narrow within specialist fields.

In New Zealand there has been resistance within the polytechnic system to criterion-referenced learning, partly because extra time is required for assessment and partly because tutors feel comfortable with norm-referenced examinations with which they are familiar. Few university lecturers or polytechnic tutors have any formal background in education or have undergone extended teacher training. They rely inevitably on their own experiences as students and on past lecturers as teacher role models.

Nalson comments that the agricultural colleges in Australia have never trained more than a very small proportion of the total number of farmers and graziers. The same is true in New Zealand. Universities operate largely on-campus, with mainly year(s) long, fulltime courses. The polytechnics have more flexibility than the universities, and regularly take training out into rural centres. This has its limits, as tutors who travel and administer distant bases on top of their normal teaching hours requirement simply run out of time. Correspondence courses provide a written interaction, but cannot give students the face-to-face, group environment that day-release classes offer.

Agricultural training institutions in both Australia and New Zealand experience conflict over who to design courses for. Should they target the more practically oriented future farmers or should they concentrate on training farm servicing personnel, agricultural researchers and technicians?

The polytechnics, traditional providers of trade and technical training, seem to be the logical providers of training for farmers and horticulturalists. The agricultural universities have, historically, trained prospective farmers, and continue to offer certificate and diploma courses, providing 'upmarket' courses for a small proportion of the farming community. Those with diplomas from these courses have a very good, broad-based training, and carry this with good effect into their farming communities. Their numbers, relative to all those entering farming, are very small.

Like Australia, New Zealand at present has the capacity to train only a small proportion, perhaps 15 to 20 percent, of those entering

farming. As Nalson says, the provision of suitable training for primary producers is currently one of the most neglected areas of agricultural training.

Australian initiatives in agricultural education

Richard Bawden, Head of the Agriculture School at Hawkesbury Agricultural College in Australia, recognised that Australian agricultural education targeted technical and scientific agriculture rather than farming as such. He has developed a new training approach at Hawkesbury. Bawden divides agricultural people into three categories related to information needs; the users (farmers), the generators (researchers), and the disseminators (trainers and extension workers), who interface between the first two groups. The college is targeting the user and disseminator groups.

Bawden describes the user (farmer) as 'one who manipulates resources and situations in trying, with less than full information, to achieve his goals within the context of favourably assuring economic, social and environmental consequences. The farmer is a problem-solver and decision-maker in an environment containing considerable uncertainty.'

The major change at Hawkesbury has been the replacement of the 'chalk and talk teacher' with the 'helper of learning' or facilitator. Bawden is firmly convinced of the need for massive changes, not just in curricula, but in the whole educational process, if learning resources are to be provided for a community constantly seeking ways of coping with increased complexities.

The Hawksbury staff want to help learners learn how to learn, provide learners with opportunities and experiences to learn, to solve problems and make decisions and to accept increased responsibility for their own learning.

Bawden and Swain, in their paper on education and productivity growth in Australian agriculture, argue that in the past farmers have increased production by adopting new technologies and by using improved genetic material (innovation adoption). Improvements to profitability must now come through increased productivity (better efficiency) rather than increased production (gross output). Extension workers (the disseminators) must now be more than 'technology pushers' – they must be people who are 'competent in whole farm analysis, who have people skills including empathy and communication, sensitivity, some basic financial analytical skills, and who

have a broad knowledge of husbandries and technologies.'

Bawden and Swain believe that the educative process must show a much more fundamental and sensitive reflection of the way in which people learn as distinct from the way they have traditionally been taught. Bawden deplores the lack of 'people orientation' in formal agricultural education. He concludes that educators must cease to be mere commentators on change, and adopt positive roles as agents of change.

The New Zealand Department of Agriculture (now MAF) took over the task of educating farmers in 1929. They have run field days and discussion groups, but have concentrated on servicing the more innovative farmers in the hope that this would have a flow-through effect to others in the farming community. Anderson (1982), writing on the transmission of knowledge to farmers in Australia, questions the diffusion of innovation model (Rogers), pointing out that early adopters often belong to a network that actively guards its new knowledge. There is a class of 'knowledge elites' who use their knowledge superiority for their own economic advantage. He suggests that extension workers have helped to maintain this small group of farmers, and have at the same time tended to neglect the larger proportion in the hope that the early adopters would pass on what they had learned.

Lees, in the book *Competence and Curriculum*, relates how he questioned employers who pointed out that communication, management and extension skills were poorly developed in agricultural graduates. This bears out Bawden's contention (the lack of 'people orientation' in training programmes), and challenges the way agriculturalists are trained both in New Zealand and in Australia. The heavily technical emphasis in agricultural degree studies has inevitably created difficulties for graduates working with the farming community.

Farmer training – recent emphases

With the changing emphasis, from increased production using the latest technological advances, to increased productivity through improved farm and business efficiency, comes the call for management education.

The revised Lincoln College Diploma places greater emphasis on management. Given the complexities of farming, and the very wide range of management problems, students in their late teens with

limited farming experiences must have difficulty coping with this study. J.W. Carey (Melbourne University, 1981) suggests that

> ... managers learn from a diverse range of sources and that the greater part of learning of managerial skills comes from "natural" experience work and other events and experiences not deliberately planned for learning purposes.
>
> Education and training activities make a significant contribution to the skills underlying management performance. In agriculture it is likely that experience would be at least as important and that education and training activities would generally be less in number, less formal and less planned.

There is the danger that one particular management skill may become overemphasised, and farmers, judging that this is not what management as they know it is all about, will undervalue the educational experience. This may be the reason why so many farmers criticise people who have done university courses; they have been trained in relative isolation from the primary learning environment.

Edgar Persons (University of Minnesota) bewails the young farmer training programmes that place disproportionate emphasis on socio-civic/leadership development goals at the expense of systematic instruction for developing management skills. The same criticism could be levelled at the New Zealand Young Farmers' Club movement of the 1980s. Persons goes on to say that management is

> ... more than the accumulation of isolated knowledges and skills. It is the putting together of related knowledges, skills, ideas and concepts in a logical, thoughtful reasoned pattern that will permit the operator to plan, direct, control and evaluate the whole business. Management education is directed at the whole business and concentrates on the functions of managers.

Educating farmers to view each decision in the light of the effects it will have on the whole farm should be a goal of the instructional programme. Persons highlights the difficulty in this by stating that because each farm is different, instruction needs to be 'personalised'. In other words, the instructor must be able to deal individually with farmers at times during instruction. Management training has to take place in small groups. In Minnesota (1981) a single farm management tutor serviced 50 farm families who enrolled for a minimum of three years in a part-time training programme.

R.M.D. Harris, in his 1966 MA thesis on secondary agricultural

education said, 'the farmer must be able to think in fairly abstract terms when handling the data of farming.'

Emery and Deser elaborate, saying the role of education is to 'improve conceptual skills so farmers can communicate and be communicated with'. Face-to-face interactions in a classroom help develop these skills. One farmer, an ex-student of Lincoln College, said, 'Lincoln taught me how to think.'

Loftus, writing about management education, said that 'inadequacy of expertise, poor training and education, lack of finance, discriminations in the field of taxation, commercial relationships, etc. are the prime causes of business failure'. He goes on to suggest that, in farming, a lack of management skills is only one of many problems which confront farmers. Other factors, such as climatic conditions, world market fluctuations and government policies, all play a part, and it is difficult to clearly define the farmer's needs with regard to training.

Phillips, in his 1985 thesis on learning for dairy farmers, stated 'farmers are very capable self-directed learners, planning, managing and directing their own projects. The issue becomes not how to motivate people, but rather to improve the active learner's competence to manage change successfully.' Referring to the New Zealand Dairy Board's Consulting Officer services, Phillips says 'the service needs to be seen primarily as an adult education unit successfully helping with the learning efforts of the dairy farmers'.

Phillips, reflecting the opinions of a number of modern educators, maintains that rather than merely trying to transmit knowledge and skills, the training process should provide learning experiences to help learners learn and acquire the skills of self-directed learning. Teachers need help in order to acquire skills as facilitators of learning.

Tertiary training for farmers in New Zealand

T.H. Scott (Lincoln College), back in 1947, concluded his remarks regarding a report of the Consultative Committee of the Council of Adult Education by stating that

> ... the agricultural industry is of basic importance in this country, calling for a high standard of education and responsibility. In view of the standard of education of those entering agriculture, which is much lower than those entering other occupations (and in the past has been lower still) the need for rural adult education is so urgent that a more vigorous approach to the whole problem seems necessary.

In 1966, W. Stark, agriculture master at St Andrews College, pleaded for a greater emphasis on secondary school teaching in agriculture. He claimed that of the 3500 boys leaving school to go farming, only 500 at the most would get tertiary training.

In 1989 the Trades Certification Board requested the farming examination dates return to November (from June) because the small number of entrants (250) did not justify setting up special examination centres. Some TCB Farming students go on to do TCB Farm Business Management, so a likely maximum of 200 individuals annually complete training for farming through TCB study. If 150 people gain university qualifications and enter farming each year, and 'a further 150 train, or begin training by way of fulltime farming courses around the country, Stark's figure of 500 'boys' still stands, the only change being that some of the 'boys' are now young women!

D. McSweeney (Lincoln College), speaking at Orange Agricultural College in 1975, told the Australians that the tradition of on-farm training in New Zealand was deep-rooted (university courses retain their practical component today and TCB qualifications have fulltime farm work requirements).

H. Downes, in his Churchill Fellowship report on agricultural training (1974), points out that New Zealand has a very flexible farmer training system. In Britain the kind of training received (normally at an agricultural college) depends on a student's secondary school attainment level. Management training is reserved for more academically able students. Downes noted the expense of college-based training, and recommended that funds for training farmers be channelled through polytechnic-type courses, because of their 'localness' and relatively low cost. He saw a need for tutors skilled in the business of communication, motivation and the identification of human needs (as opposed to technological skillfulness).

Downes recommended that teachers and tutors in agriculture should have contemporary, practical skills, combined with educational skills and philosophy. In a similar vein to Scott, he says:

> ... a country whose economic survival depends on the skills and expertise of less than ten percent of its workforce cannot afford to leave the training of that small percentage to be run on a shoestring basis by amateurs, however dedicated and responsible these amateurs may be. It must be a responsibility of government, as part of national economic planning, to give that training the support that will enable the industry to cope with world-wide pressures which are unlikely to diminish and can, indeed, only increase on an accelerating scale.

D. Cameron and B. Wilkinson (1976-77) travelled widely throughout New Zealand interviewing people involved with agricultural training. They made many recommendations. A few of these have been implemented, many have not. One recommendation was that the Young Farmers' Clubs promote agricultural training, but few appear to do so. Another recommendation was that the MAF take a much greater role in co-ordinating and integrating agricultural training, but this has not happened, and seems unlikely under the user-pays system which now prevails.

The Agricultural Training Council

The Agricultural Training Council (ATC) was formed after the 1970 National YFC Conference (Training in Agriculture). Established in 1971, it set up a Farm Systems Study Group to define the skills needed on farms.

The ATC's major contribution to training was the production of Training Guides for the 400-plus farm tasks the study group had delineated. Horticultural Guides were also produced for the Certificate in Horticultural Practice. The TCB Farming prescription was rewritten, with an internal assessment programme replacing the first and second qualifying examinations. Agricultural training led the way and other trades adopted a similar skills-based curriculum.

The government cut funding to the ATC in 1985, and when the Federated Farmers said they could not pay the difference, the ATC was disbanded. Farmers lost the services of the only group acting to promote and co-ordinate farmer training nationally.

Lees, in a chapter entitled 'Changes Affecting Agriculture', sums up his frustration with the difficulties in implementing such changes by saying, 'while Australia continues to have no national policy for agricultural education, and indeed no coherent national policy for agriculture, it is likely that the growth and development of agricultural education will continue to be a series of *ad hoc* responses taken in isolation from agriculture and the existing system of agricultural education.' It is sobering to think that the situation in New Zealand is much the same.

CHAPTER 5

Sources of Information, Advice and Training

The fundamental survey questions, 'How do farmers learn?' and 'What are the preferred farmer learning environments?', were framed in a way that encouraged interviewees to give genuine responses. To this end the questionnaire section dealing with sources of learning had three parts, each designed to build and extend on the previous one.

The first part had a very open ended initial question asking, 'How do you manage to stay up-to-date with developments in your type of farming?', followed by more specific questions relating to finding out about a new pasture plant or cultivar.

Part two asked respondents to suggest ways in which different people with specific information or training needs might have those needs met. The last part was quite direct, asking respondents to choose their three preferred methods for learning about something of direct relevance to their farming operation.

No prompts of any sort were given during the first part of the questioning. There was the risk that some people would overlook ways in which they did keep up-to-date. On the other hand, there was the danger that some would give expected, rather than real, responses if a checklist was provided.

A suggested list of information and training sources was provided for part two (see below), which some people referred to carefully, and others largely ignored. It was the 'off the top of the head' answer that mattered, as the spontaneous response was likely to reflect the farmer's normal information-gathering behaviour.

A farmer who attended a recent Lincoln College Farmers' Forum seminar said, 'I don't usually think to go to things like this myself but the neighbour asked if I would go with him so here I am.' In contrast to this, the survey questions were designed to find out from

individual farmers what they were most likely to do when they were acting on their own initiative.

Staying up-to-date

Thirty different ways of staying up-to-date were recorded. Eighty-one percent of farmers mentioned reading, 53 percent talking with other farmers and 22 percent referred to the stock and station agent. Other ways, in rank order were field days (20 percent), farm discussion group (17 percent), radio (15 percent), the MAF (8 percent), courses, sons or student employees (4 percent), marketing personnel (3 percent).

The ways of keeping up-to-date mentioned by one or two people were: special meetings, the Vet Club, farmers' conferences, on-farm trials, the accountant, a ram breeder, clients, the woolclasser, Ag-Links, Federated Farmers meetings, Wool Board contacts, A & P shows and farm advisers and consultants. A few farmers belonged to organisations like Sheeplan that provided them with a range of outside contacts. One man said he could no longer rely on the grain agent for unbiased information, and another pointed out that MAF was important because it did not have a commercial interest when giving advice.

Preferred ways of staying up-to-date

When asked to state (without prompting) their preferred way of staying up-to-date, 29 percent of the farmers said combinations of all the various means by which they kept in touch, 32 percent said it was reading, 17 percent said other farmers, 7 percent said the discussion group and 6 percent the stock or grain agent. Only one person mentioned field days.

The farmers were then asked what they would do to learn more about a new plant before trying it for themselves. First choices in order of preference were a farmer who had tried it (32 percent), reading about it (26 percent), a seed agent (15 percent), ask the DSIR who had developed it (12 percent), a field day (9 percent) and a farm consultant (4 percent). Overall, twice as many mentioned a 'farmer who had tried it' as mentioned reading or an agent. Even though reading was placed high on the list of updating methods, half those surveyed wanted either to see or hear how the new plant had performed locally when tried commercially by a *farmer*.

Some farmers (10 percent) added that they would do a small trial for themselves before committing themselves to a larger area. The seed agent was considered to have a commercial bias, but would have information relating to where the plant had been grown successfully.

When asked whose advice they would take most notice of regarding the new plant, 56 percent said a farmer who had tried it, 14 percent a farm adviser/consultant, 11 percent the DSIR and 8 percent the seed agent. Two people gave reading as their source and no one mentioned a field day.

Seeking advice and meeting learning needs

Eight real-life farming people (names changed) in need of information, advice or training were described to each farmer on a card set out as follows.

> *Here are some real-life situations. Choose (from the list) the most effective way (or ways) in which YOU think the person can find out what he/she needs to know.*
>
> *Please don't hesitate to make your own suggestions if you think there are better ways not listed.*

(a) Bert wants to find out how to grow leaner lambs.
(b) Graeme wants to work out fertiliser application rates from the soil tests.
(c) Nigel wants to know what he should use to spray out persistent pasture weeds.
(d) A 25-year-old married fitter and turner is determined to go farming.
(e) Jan wonders if she should use a different worm drench.
(f) A 30-year-old shearer wants to improve his chances of getting a job as a farm manager.
(g) Jenny wants to start a goat enterprise on the farm.
(h) Alan, a fulltime farmer, wants to improve his financial management skills.

Interviewees were given a representative list of possible information or training sources.

Sources as presented to interviewees

They are listed roughly in order of the time spent finding an answer to the problem.

(1) Talk to the local *vet*.
(2) Get an *AgLink* on the topic.
(3) Talk to the stock and station *agent*.'
(4) See a MAF *adviser* or a farm consultant.
(5) Talk with farmer *friends* who have tried it.
(6) Go to a farm *field day* (where it is working well).
(7) Go to an industry *field day*.
(8) Go to a 2-day *course* at Lincoln College.
(9) Go to a *Telford* short course (3-5 days).
(10) Do a *correspondence* course.
(11) Join a part-time *Farming* course (15 days/year, 10am to 3pm) held locally running for 3 years.
(12) Join a part-time *Farm Management* course (17 days/year, 10am to 3pm) held locally running for 2 years.
(13) Go to *work* on a farm (a farm 'apprenticeship').
(14) Do the Lincoln College *Diploma* (2 years fulltime).
(15) Some *other way* (please say what it is).

Some read the list through and discarded it, others referred to it throughout. It was made clear that the list of sources was by no means comprehensive, and attention was drawn to the 'other' category so the interviewees felt free to suggest ways not listed. There were 39 'other' responses for both the fertiliser and weed questions, showing that farmers were quite prepared to make their own suggestions.

There were no questions relating to training for school leavers as such since the prime focus was on existing farmers and more mature people entering farming. Although the questions were related to other real people, some farmers recognised they had the same training need or needs. Some didn't like to advise others, but said what *they* would do if they were in the same situation.

Responses fell into four groups. A few busy farmers, anxious to return to work, gave just one or two sources for each individual need, although, with more time to reflect, they would probably have given more. Farmers with limited outside contacts seemed satisfied

to provide only one source for each situation. This source did not always come quickly to mind.

A third response group gave a variety of sources for some situations, and only one for others. The final group, most of whom had a wide range of outside contacts and/or tertiary training in agriculture, provided three or four or more sources per situation and, in a few cases, an evaluation of each source.

A knowledge of the kinds of tertiary training available for people engaging or engaged in a farming career was sometimes limited to the response, 'Perhaps they could go to Lincoln and do a course there.' When this was the case some of the interview time was then spent in outlining the types of training available from Lincoln and Telford, along with part-time training through the polytechnic system (day-release and correspondence). As some courses follow on from each other (e.g. TCB Farm Management may follow TCB Farming), the order of choices was affected by the time sequence rather than the relative merits of the courses.

Measuring farmer awareness of information, advice and training sources

Although the real-life situations used in the questionnaire seemed effective in determining what farmers would suggest *other people* do to get information or training, they could not determine whether in fact the individual farmers would follow their own advice. The answers showed only an awareness of sources of information and training programmes.

The awareness index

This index was a measure of the extent to which farmers recognised the usefulness of the various sources of information or training for meeting a specific need. There was a maximum of four recorded answers for each information/training need (excepting drench, two and fertiliser, three). Any source that would provide good information or assistance was scored 100, with secondary sources 50.

The awareness index was worked out by calculating the relative value of the times a source was mentioned as a percentage of the possible source total, e.g., the vet source total score was 200 (leaner lambs 50, drench 100, goats, 50). The vet was mentioned 124 times for these three needs, giving an index of 62 percent.

The index provides a way of comparing source awareness by farmers in the survey area. The list is split and ranked in two sections – the first group on the basis of needs met primarily through information and advice, and the second on needs met by longer term training.

Table 5

Ranking and Total Mentions for the Different Sources of Information, Advice and Training

Information, advice & awareness training opportunities	Total mentions	Overall rank (2 groups)	Index
(1) Talk to local vet	131	4	62
(2) Get an AgLink	34	7	2
(3) Stock and station agent	180	3	64
(4) MAF adviser or farm consultant	229	1	55
(5) Talk with farmers who have tried it	181	2	66
(6) Go to field day on farm where idea is working well	56	5	52
(7) Go to an industry field day	54	6	31
(8) Lincoln College 2-day course	19	7	Nil
(9) Telford short course (3-5 days)	76	3	35
(10) Correspondence course	71	4	24
(11) Polytechnic part-time farming course	57	5	56
(12) Polytechnic part-time Farm Management course held locally	144	1	72
(13) Work for a farmer	121	2	61
(14) Lincoln College Diploma	29	6	29
(15) Some other known way	235		*
(16) Don't know	25		*

Appendix C shows how often each source was mentioned for the particular needs. The symbol * signifies the index was not calculated.

Detailed comment on the recommended sources of information, advice and training needs

(a) Advice on growing leaner lambs would be sought from the lamb buyer most frequently, with the MAFTech adviser and farmer friends close behind. Field days were also recommended, but only half as often as talking with farmer friends.

(b) Advice regarding fertiliser application rates would be sought mainly from MAFTech, and to a lesser extent, the local fertiliser company expert. MAFTech, some noted, were more likely to give (commercially) unbiased advice.

Some farmers pointed out that recommended application rates were given on the soil test report, so then the question was extended in order to get a response by suggesting that Nigel's finances were limited and he needed advice as to how best to spend the fertiliser dollars.

Other sources for help with working out fertiliser rates included the private expert, 'myself', the bank manager (for finance), a grain agent, the discussion group and reading.

(c) Weed spraying advice would be sought mainly from the stock firm specialist; MAFTech, the spray contractor and the chemical company rep were other popular sources of advice. AgLinks received a number of mentions. Also mentioned were the Agri-Chemicals Manual, the merchandising firms, the Lincoln College Budget Manual and the Weed Control Officer. One man would not use sprays at all.

(d) Twenty-nine people would definitely discourage the fitter and turner from going farming. They said he 'he must be nuts', 'not right in the head', 'silly', 'a drip', have received 'poor advice' and should 'forget it'. As with fertiliser rates, the statement was extended by saying that the fitter and turner had just been made redundant from his city job, and that he really wanted to give farming a try.

Eighty percent of the respondents said he should get a job on a farm, then do a course either by correspondence or day-release or possibly study fulltime when he had some practical experience and was sure he wanted to continue farming. The rest recommended he went to MAFTech, an accountant or a banker for

financial advice as to the (in)advisability of going farming. Two fitter and turners known to respondents had in fact gone farming, but both had married farmers' daughters first!

(e) The vet was the popular choice for advice relating to a change of drench. MAFTech, the stock agent and other farmers received a few mentions, but it was clear that farmers relied heavily on their vet for help with stock health.

(f) A number of the respondents were, or had been, shearers. While many thought a shearer wanting to improve his changes of getting a farm manager's job would pick up a lot of useful information from the farmers employing them, 40 percent said the shearer should go to work on a farm to learn other skills. Fifty percent of first choices involved doing courses, with the Farm Management one being most popular. Other suggestions included doing casual farm work, and leasing, buying or sharefarming some land to gain experience and prove himself as a manager.

(g) Some farmers, who had lost money with goats, would discourage Jenny from becoming involved. Most suggested she talk to farmers who had goats, or a MAFTech adviser. Field days were another important source of information. Some suggested Jenny get financial advice first, and an equal number said, 'Try a few for a start.' Other suggestions included reading widely, joining a goat organisation or discussion group and talking with a stock agent.

(h) Alan, the fulltime farmer wanting to improve his financial skills, gave many respondents pause for thought. Some, realising they were in the same situation themselves and doing nothing about it, gave vague responses. This question had the highest number of 'other' replies of any of the eight real-life situations.

A short course at Telford was the most popular standard choice, but the locally conducted polytechnic Rural Office Practice course came a close second, followed by part-time Farm Management or a correspondence course. Twenty percent thought the accountant could give Alan the guidance he needed, and two people mentioned the bank manager in a similar role. Two suggested that Alan's wife do the job for him, and another said he should pay someone to do it for him (several people interviewed employed a farm secretary). Several recalled an evening accounting class run by the local high school for people in the district.

Farmer awareness indices

The awareness index is a guideline measure only. Five sources were below 50 on the index. One, the AgLinks, barely feature and must get very little farmer use. Just over half the farmers mentioned the MAF as a source of information and advice for needs that MAFTech are well equipped to meet. When questioned, the District Advisory Officer estimated ongoing MAFTech contact with just 10 to 15 percent of the farming community. In this case the awareness index (55) shows a degree of awareness of the resources of up to three times the actual use.

CHAPTER 6

Learning Environments

Two field day-type activities held during 1988 are compared below to introduce this section on preferred learning environments.

Lincoln College joined forces with the Wool Board to run a two-day seminar called 'Wool Production for Profit'. The first day focused on producers, and the second on wool processors and their requirements. Participants were able to come on either or both days.

The Malvern Farmers' Veterinary Club sponsored a one-day event on establishing a fine wool flock. Details of both occasions are summarised in the table on page 50.

No feedback was possible for the fine wool day as this came after interviewing had finished. Some interview questions were based on the Lincoln wool days.

Farmers surveyed were asked if they had heard of the Lincoln College/Wool Board seminar. Seventy percent said they had, but of these farmers only four went. Another registered but couldn't get there on the day. Those who said they had not heard about the seminar were asked if they would have gone if they had known about it, and six (out of 29), said they would have tried to get there.

Those who had heard about the seminar were asked to say what might have discouraged them from attending. Thirty-eight percent said they were too busy, 25 percent felt it was not particularly relevant to them and 37 percent gave a variety of other reasons. Some had been to similar courses, others were woolclassers in their own right and some had been given assistance by a Wool Board instructor or stock firm representative.

Asked where they would go for further information about wool preparation, 54 percent mentioned a stock firm woolstore person, 42 percent said they would talk with the wool buyer, 24 percent mentioned the Wool Board training officer and 10 percent gave other sources. Several of this last group employed a woolclasser and looked to him for guidance.

Table 6

Summary of Comparison Between Two 1988 Farmer Training Events

Location	Lincoln	Darfield
Time of year	Early May	Late October
Venue	Lecture auditorium	Woolshed
Fees	$25/day (proceedings)	No charge
Advertising	Brochures to Wool Board and Lincoln College contacts, advertisements in main national dailies ($5000 cost)	Mailing to 1400 rural boxholders deliveries, small newspaper article. ($400 cost)
Attendance		
Overall	120 registrations	100 estimated
Farmers from Central Canterbury	9 attending	Most present
Input people	Wool Board staff, Lincoln College staff, MAF Research staff, Wool brokers, Australian wool expert	Wool Board Prod. Manager, MAFTech (breeding), Private consultant (feeding), Local vet (health)
Treatment of topic	General, sometimes very technical, time for some questions later each day	Related specifically to the fine wool sheep farmer, directed at farmers, most speakers known locally
Newspaper reports	First week, conflict between Wool Board and brokers on the standard of preparation. Second week, reply by two Lincoln College staff with useful technical content	Establishing a fine wool flock, general fine wool comment, feeding for wool production

Following straight after a question relating to sources of information, advice and training, farmers were asked to choose (in order of personal preference) three ways by which they would like to learn about something like 'All Wool Farming'. They were given a card with a list of eight typically available options together with an 'other' category so they were free to add effective ways known to them if they wished. The second and third choices were to be made on the basis that they could not, in fact, get to their first or second choices, and were thus choosing afresh.

The response ranking is given in the Table 7 with the response percentages in brackets.

Table 7

Preferred Learning Environments

Learning environment	1st choice ranking	2nd choice ranking	3rd choice ranking	Overall ranking
Seminar with demonstrations, small groups, questions and discussion opportunities	1 (49%)	2 (17%)	4 (12%)	1 (33%)
Talking with other farmers	2 (16%)	1 (20%)	1 (19%)	2 (18%)
Farm discussion group	3 (16%)	3 (17%)	5 (11%)	3 (16%)
Reading	4 (5%)	7 (4%)	7 (7%)	7 (6%)
Farm adviser visit	5 (5%)	5 (14%)	2 (15%)	4 (10%)
Farmers in a local hall with industry rep/farm consultant (half day/evg)	6 (3%)	4 (15%)	6 (9%)	5 (8%)
Talk with stock firm agent or industry rep	7 (2%)	6 (10%)	3 (14%)	6 (7%)
Large seminar (100+) in a lecture theatre lasting for a 6-7 hour day	8 (1%)	8 (1%)	8 (8%)	8 (2%)
Other	(3%)	(2%)	(3%)	

Eighty-one percent of the first choices went to learning environments in which farmers, in a largely farmer-oriented context, had a chance to be heard, to ask questions and be involved in discussion.

Fifty-four percent of second choices and 42 percent of third choices were similarly directed. The seminar with small groups, farm discussion groups and talking with other farmers got 76 percent of the overall preferences.

Twenty-seven farmers used a farm adviser, but only two of them gave the farm adviser visit as a first choice. Just over half mentioned a farm adviser visit.

Twelve of the 34 discussion group members gave the discussion group as their first choice, with 22 including it among their choices.

Six farmers gave talking with other farmers as their first choice, and talking with an agent or industry rep as the second. With one exception these men had a below average management index (see later) and had not passed School Certificate or done post-secondary study. Two farmers who gave talking with the agent as their first choice, and one who gave talking with other farmers as his only choice, had a similar background.

While 57 percent of farmers with no school attainment chose other farmers as their main source of information, only 27 percent of those with University Entrance or better cited other farmers as an important information source. Further comparisons are tabulated on the opposite page.

Table 8

Choices of Information Source According to Farmer Category

Category	No. in category	First choice	Second choice	Third choice	Total mentions	Total as a % of category
Discussion group members choosing the discussion group	32	13	6	4	23	72%
Non-discussion group members choosing the discussion group	73	5	12	6	23	32%
People using adviser who mentioned adviser visit	27	2	7	6	15	56%
People not using an adviser who mentioned an adviser visit	78	3	8	9	20	26%
People with high resource index who chose reading	25	1	0	2	3	12%
People with a low resource index who chose reading	83	3	4	5	12	14%
People with a high resource index who chose other farmers	25	4	5	4	13	52%
People with a low resource index who chose other farmers	83	13	14	15	42	51%
People with University Entrance or above who chose other farmers	30	0	3	4	7	23%
People with no school qualification who chose other farmers	54	10	8	12	30	57%

CHAPTER 7

General Farm Management Practices

Question responses relating to information sourcing and farm practices are summarised below:

Seventy-four percent of farmers questioned said they did not use a farm adviser or consultant. Seven people in this group said they used to do so but do not now. Others would ring the MAF (no charge for phoning) if they needed spot information. One farmer had an advisory officer son who gave him free advice! Some of the 26 percent of farmers who used an adviser said they did so to a rather limited extent. Three other people were prepared to use an adviser if the need arose.

Eighty percent of married men said their spouses were fully involved when important management decisions were being made.

Thirty percent of farmers surveyed belonged to a discussion group. A third of these people said they also made use of a farm adviser or consultant.

Discussion groups run by MAFTech were meeting less frequently since MAFTech charges had been introduced. Group members felt they got something out of belonging, but two wondered at the usefulness of the group once it had visited all the members' properties.

One discussion group had lapsed and none of the members appeared enthusiastic enough to help get it started again. The most successful group had the free services of a Lincoln College farm management lecturer, with one of the group members taking responsibility for organising meetings. One deer farmer and a goat farmer belonged to specialist discussion groups (beyond the survey boundaries) which met on a monthly basis.

One-third of discussion group members had meetings two to three times a year, half met five or six times and the rest had from seven to eleven get-togethers annually.

When asked about keeping up with different types of farm diversification, 77 percent claimed they did make an effort. Reading proved

by far the most popular method, followed by talking to farmers who had diversified and going to field days. One man said he discussed diversification with his adviser.

Seventy-six percent of those questioned said they regularly set goals for themselves in relation to the farm. When asked to give a specific short-term goal, 19 people suggested goals like 'renew one pasture paddock this year'. Another 19 gave general responses such as 'more gorse control'. Other responses (number in brackets) were balance the budget (9), reach production targets e.g. 120 percent lambing (8), get timing right e.g. sowing dates (6), increase productivity/efficiency of the farm (5), reduce debt (2). Eight people were quite vague with their responses and six just wanted to 'Survive!'. Three people were planning more time away from the property.

Although one farmer had an annual planner on his wall, and another had a list of tasks to be done on his notice board, many had to think hard before they could come up with a short-term goal. Lack of funds meant that only essential tasks could be carried out and these needed no special planning.

Ninety-four farms ran some sheep. Fifty-two percent of these properties had sheep scales. Everyone with scales used them for weighing works lambs, 30 percent used them for feed monitoring and on 12 percent of the farms the scales were used in the selection of flock replacements.

Lambing management systems used were shedding off the ewes from those that had lambed (53 percent), set stocking (34 percent) or a combination of both (13 percent). Most set stockers were pastoral farmers, and those who had previously shed off were pleased they had made the change to set stocking. Two said it had improved their lamb survival rate.

Farmers were asked to say what they did with ewes that gave problems at lambing time. Replies were assist and cull the ewe (43 percent), assist and cull if a serious problem (21 percent), assist and give one more chance (14 percent), assist and keep (18 percent) and 4 percent said they would keep the ewe, but sell its lambs. Mixed cropping farmers who bought in older ewes were much more likely to keep problem ewes than those who bred their own replacements.

Silage has been promoted as a drought feed for Canterbury farms. Nineteen percent of the survey group made silage, with annual amounts ranging from 100 tonnes to the 2000 tonnes made on a large deer property. The average quantity for these farms was just over

Table 9

Stock Fodder Areas (Turnips, Rape, Cereals, Short Rotation Ryegrass)

No fodder	<10 ha	10-19	20-29	30-39	40-60	>60 ha
17%	14%	29%	15%	8%	12%	5%

Table 10

Cash Crop Areas (Worked for Cereals, Small Seeds, Pulses and Other Legumes)

No crop	<20 ha	20-49	50-99	100-149	150-200	>200 ha
46%	14%	15%	7.5%	7.5%	6%	4%

500 tonnes of silage made a year. Cropping farms use alternative feed supplies (crop residues and greenfeed drilled after cereal crops) so few made silage.

Considerable emphasis has been placed on the use of objective measurements for ram selection in recent years. Forty-six percent of those surveyed said they used the objective records in some way in their selection of rams; 54 percent selected rams on visual appraisal alone.

When asked to state which single characteristic was given greatest priority in ram selection, farmers said wool weight (30 percent), conformation, especially length (25 percent), the right breeder (5 percent), breeding index (3 percent), lean growth (3 percent), fertility (2 percent), wool cover (2 percent) and other factors (31 percent). One or two said the animal had to 'look like a ram', others emphasised strength (or fineness) of the wool, staple shape, fibre diameter, ram size, whether easy movers, large testicles, price, easy-care, temperament, soundness, constitution, lean appearance, length of leg and one man said the ram had to be upstanding. It was clear that for half of the farmers the traditional visual characteristics were of greater importance than the objective measurements for wool weight, growth rate, fertility and lean growth.

Farmers were asked to recall one of their management changes that had lifted production levels. Sixteen percent could think of nothing specific, 57 percent mentioned minor changes and the remaining 27 percent had made a significant management change leading to increased production.

Seventeen percent did not expect to be still on their farms in five years' time; the remaining 73 percent did. Of these people, 68 percent did not expect to change the way they farmed. Thirty-two percent thought they would be involved in change over the next five years.

At the end of the interview a subjectively assessed 'change factor' was allocated to each respondent. The change factor was based on the evidence of change in the past, the farmer's information-gathering behaviour and willingness to experiment with recently recommended practices. The survey group was split into four categories as follows:

Table 11
Likelihood of Management Change Occurring

Change index	Farmer category	%	Average age	Average management index
Factor 1	Unlikely to change	15	58	33
Factor 2	May possibly change	22	49	52
Factor 3	Likely to change	40	38	64
Factor 4	Very likely to change	23	35	68

Differences in average management index (see later) between all groups except groups 3 and 4 were statistically significant ($p<0.01$).

The change factor value fell with increasing age, and varied directly with the management index (a measure based on farm management skills). Recent emphasis on the farm as a business prompted the question: 'What particular skills and knowledge do you think a person would need to successfully manage a farm like this one?' almost

everyone pointed out that 'you've got to have the practical skills!'. Half mentioned the need for financial management skills, and a third said business skills were important. Seventeen farmers felt that local knowledge, especially in drought prone Canterbury, was vital for success.

Other characteristics mentioned were the need for dedication, a determination to succeed, versatility, a willingness to ask for advice, farming experience on other properties, management training, an ability to keep up with essential tasks, market knowledge and stockmanship.

CHAPTER 8

Financial Practices and Management

Some farmers showed an enthusiasm for the business/financial idea of their farm, but others regarded office work as a necessary evil. 'Real' farming was the very practical, outdoors stuff. Older farmers had minimal contact with either accountant or financier. Some farmers expressed pride at not being beholden to anyone for finance, and a few were incensed to think that a bank manager had dared to ask them for a farm budget.

Many farmers (46 percent), when asked how many farmers they thought kept a cashbook, expressed surprise, and said they really didn't know; they didn't ask for that sort of information. Nine percent thought over 80 percent of farmers would need to keep a cashbook, especially now with GST to do. A further 23 percent guessed that around 50 to 70 percent would keep a cashbook. Nineteen percent thought the figure would be 40 percent or less.

Fifty-eight percent of those surveyed kept a cashbook (or an equivalent system with a bureau or stock firm). Of those who did not, 47 percent said they ought to, 33 percent did not feel it was relevant to their situation and 10 percent used some other system.

On the farms where a cashbook was kept the man did most work updating it in 34 percent of cases, wives did this in another 38 percent of cases, and for the remaining 28 percent of farms someone else did the job. Eighty percent of farmers interviewed did their own GST returns, 8 percent gave the accountant that responsibility, 7 percent used a farm secretary and 5 percent had some other arrangement. Seventy-nine percent of those interviewed said they put in their GST returns two-monthly, with 21 percent using the six-month period.

Financial control

Accountancy services fell into three main groups: specialists who dealt only with rural clients, large firms with a farm specialist on

their staff and general accountants. One stock firm has its own trust department to handle client accounts.

Fifty-eight percent of farmers questioned said they used a specialist farm accountant. The rest used general accountants or seemed unsure as to how many farmer clients their own accountant had. One, an accountant by training, did his own books; another was assisted by his accountant wife.

Farm accountants who write for the *New Zealand Farmer* urge farmers to maintain regular contact with their accountants and bank managers. Farmers were questioned about the frequency of contact with the accountant to get some measure of their business involvement.

Accountants are seen as a source of both information (about new regulations and tax changes) and advice (when or if to buy, how to reduce taxation, even whether to apply fertiliser or not). Four farmers said they contacted their accountant once a year; three thought they would have contact more than 12 times annually. Thirty-two percent contacted the accountant one to three times a year, 47 percent between four and six times and 18 percent between eight and 10 times annually.

Bankers, seen primarily as providers of money rather than advice, were contacted less frequently. Twenty-three percent never contacted the bank, 41 percent were in touch one to three times a year, 33 percent four to six times and 11 percent, seven to 12 times yearly. Two farmers contacted their bank manager more than 12 times a year.

Budgeting

Seventy-three percent of farmers surveyed said they did a cashflow forecast budget each year. Twenty percent said that, having done it, they did not refer to it again; 36 said they referred to the budget monthly. Seventeen percent used the budget for planning, and the rest looked at it infrequently. It seemed that 20 to 30 percent were budgeting more for the accountant's and financier's benefit than for their own enhanced financial control.

Older farmers particularly were quite resentful about budgeting, saying that with product prices so unpredictable, and the weather, the whole exercise was pointless (the prolonged drought is likely to confirm this attitude). Others said that even though prices were up and down, overall their actual figures were within 5 or 6 percent of

those in the budget. Eighty-five percent of those whose debt servicing to gross income ratio exceeded 20 percent (farms over 140ha) were maintaining a cashflow forecast budget.

Asked why they began budgeting, 48 percent said they had been requested to do so by bank, accountant or stock firm and 42 percent said they did it for financial control. Regarding the way they had learnt to do a budget, 26 percent said they were self-taught, 16 percent had learnt at Lincoln or on a course, and the remaining 47 percent had learnt by some other way.

Only nine (15 percent) of the 61 farmers who kept a cashbook updated their budgets at the same time as they did their cashbooks.

Three farmers had been doing a budget for more than 20 years, 28 percent for 10 to 20 years. Eighty-two percent, however, had been budgeting for less than 10 years, with 38 percent starting in the last five years. This 82 percent contrasts with the 54 percent who had had management control for less than 10 years. Older farmers are being forced to budget where they didn't before, or are now coming to see the value of doing so.

Four farmers who did not budget had sons on the farm who had not done tertiary training in farming. Others working on the farm with their fathers had done something by way of study (several had done part of a TCB Farming course) but had not persevered. It seemed ironic that four sons with tertiary farming qualifications were either overseas or working at something other than farming in the meantime.

Farm management index

In order to establish a comparative base for the farmers surveyed, a management index was generated, using 20 questions embedded throughout the interview questionnaire (see Appendix B). Since the questionnaire was primarily about farmer learning, and not financial performance or productive efficiency, the selection of good management indicators was imperative. The index went from zero (no positive responses) to 100 (for someone scoring in all 20 questions).

Two lists of good management indicators/practices were drawn upon. Authors Osburn and Schneeberger, in their book, *Modern Agricultural Management* (1978), provided an extensive list and Pita Alexander, a Christchurch farm accountant, has regularly drawn farmers' notice to the outstanding characteristics of his 'top 10 per-

cent' clients. Although it was impossible to compare the index results from this survey with actual farm performances in monetary terms, farms with the hallmarks of well-run, efficient units were being managed by people who had high index ratings.

The management index was used to compare farmers on farms exceeding 140ha in area who used and did not use a cashflow budget. The 16 who did not use a cashflow budget had an average index of 45; the 54 who did averaged 69. This was a statistically significant difference.

Since some of this difference was due to index questions relating to budgeting, the index values were adjusted to remove this bias. The difference then was less (53 and 65), but still significant. This suggests that there are general management differences between farmers who strive for greater financial control and those who do not.

A similar comparison was carried out in relation to budgeting and farm size. Those who did not do a cashflow budget had an average farm size of 424ha, whereas the budgeters had properties averaging 266ha in area, a statistically significant difference. Closer financial control is maintained, it seems, when a property is smaller and closer to the limits of viability.

Management index and education

A comparison of the management index scores for individual farmers with their high school attainment showed that those who gained University Entrance, or Higher School Certificate, had much higher index scores than those who left with School Certificate or less. These results are summarised below:

Table 12

Average Management Index by Secondary School Attainment

	No secondary qualification	School Certificate	University Entrance	Higher School Certificate
Number in sample	18	47	19	6
Average index	51	60	70	81

The difference between those attaining University Entrance or above compared with those who did not get School Certificate was

statistically significant. Equally significant was the difference between those completing the 7th Form year and those who attained School Certificate, showing a direct relationship between school attainment and management index.

A similar comparison made between the index and tertiary farmer training is summarised below.

Table 13
Average Management Index by Type of Tertiary Training

Type of training	Short course	Telford/TCB Dip. Ag.	VFM or degree	No tertiary training
Number in sample	41	11	6	38
Average index	58	63	84	55

The differences between the VFM/degree people and those who had either not done tertiary farmer training or only a minor amount were statistically significant. The difference was less with VFM/degree and undergraduate course people, but it was still significant.

The management index was compared with the work index (based on ha and stock unit per labour unit), and although there was a slight increase in the average management index with work index (60 to 69), the difference was not significant.

The 25 farmers who used a farm adviser or consultant had a mean management index of 70 compared with an average of 55 for those who did not. This difference is statistically significant.

Finally, the management index range (20-95) was divided into four, to see if there was some general relationship between management index and school attainment. The data tabulated below are represented graphically in Appendix G.

The attainment index for each group was generated by assigning a value of 0 to each person with no school qualification, 1 for School Certificate, 2 for Sixth Form Certificate, 3 for University Entrance and 4 for 7th Form. The sum of these values was then divided by the number of people in the group. Percentage figures appear in brackets.

Table 14
Distribution of Management Indices by Secondary School Attainment

No. in group	Management index range	Average mgt index for group	Attainment index	No secondary qualifications		SC SFC		University Entrance 7th Form	
15	20-35	33	0.46	11	(73%)	3	(20%)	1	(7%)
41	40-55	51	0.73	24	(59%)	10	(24%)	7	(17%)
23	60-75	71	1.39	8	(35%)	8	(35%)	7	(30%)
18	80-95	86	2.27	4	(22%)	3	(17%)	11	(61%)

CHAPTER 9

Discussion Related to the Survey

Farmers have been experiencing the most severe economic downturn for farming in the area since the Great Depression. The survey is a window into the lives and attitudes of a group of these farming people.

Although some of the survey results merely confirm things known to people working with farmers, they provide objective evidence. It is clear that pasture management, ram selection and budgeting are all areas in which farmers could benefit from further training. Survey responses point to ways that this could be done more effectively.

The current situation

Most farmers said they enjoyed their work, but few would actively encourage young people into farming as things stood in 1988. Farmers in the survey area were less 'at risk' financially than those in the neighbouring districts, so the pessimism and disillusionment expressed by those surveyed would have been equalled, at least, in those other areas.

Farmers said they were working harder than ever before, often alone where they had once employed labour, just to stand still or even lose ground financially, year after year. Some had lost the desire to stay abreast of farming developments, while others who wanted to learn struggled to find time to read or go off-farm for training. In many cases wives were playing a vital role in maintaining the farming operation.

Most farms were not irrigated. Properties with shallow soils over gravel would be better suited for dry sheep farming, but their small size forced the owners to farm more intensively in a final effort to stay viable. Some downland farms were so wet in winter that a drier run-off block was needed, leading to inefficiencies in travel and stock movement between distant blocks. Some farmers were locked into

a struggle for survival on farms that were simply too small for continued viability. Others, having sold land to pay debts, found the reduced farm area would no longer provide a living.

The 1988 drought was affecting all the farms surveyed. It is hard to see how some of the best farmers in terms of the management index can continue to farm on if they do not obtain further financial backing. Older farmers with high equity in their land, farming conservatively in stocking rate terms, were relatively secure. Reduced soil fertility, run-out pastures and high stock replacement prices will inevitably limit productive capacity in the wake of the drought.

Morale was highest on farms where family members worked in partnership. Here one partner and his family could go away for a few days while the other partner stayed behind. Sole owners found it hard to get away for even a weekend break, and many felt they could not afford to pay for a holiday or for the help needed to run the farm while they were gone.

Changes in farming

1. *Pasture species*

   Farmers in drought prone areas have been strongly encouraged to sow up to 30 percent of the farm with species other than the traditional perennial ryegrass. Fifty-six percent of surveyed farmers said they really wanted to see how a new species performed on a local farm before they tried it themselves. Only two of the farmers had tried a new species themselves. This would confirm the comment by Michael Smetham, Grasslands Association President, who said 'Scientific research results should be demonstrated in real life situations so that farmers would be better able to judge the merits of a new cultivar or management practice.'

   In the past farmers may have feared local criticism if an experiment with a new pasture species failed – now they say the financial risk is more than they are prepared to take.

2. *Labour*

   A lack of cash to pay farm staff is forcing farmers to lay off fulltime staff. They use casual labour to help where they cannot manage on their own. Fulltime staff were employed on farms where the owner was either away a lot or absent altogether. Three specialist farms employed an extra person, but the others relied on seasonal

labour only. This loss of fulltime jobs has serious implications for training future farmers. The relatively few farmers' sons who had tertiary qualifications in farming were, in over half the cases, working overseas or in non-farm-related jobs.

One large landholding operation that employed a number of married couples experienced a high staff turnover. As larger farms become more common, greater emphasis will need to be placed on labour management training.

Seven farm managers were interviewed during the survey. Every position was different in terms of responsibility and owner involvement in the running of the property. Only one of the farm managers interviewed had a farm owner's freedom to manage the farm. Greater importance was placed on a manager's honesty, reliability and ability to work hard (in and outside normal working hours) than on his academic qualifications. While one manager was constrained financially by the fortunes of the owner's non-farm business, another benefited from the availability of outside funding.

3. *The availability and cost of advice*

Twenty years ago there were 32 people living in Darfield who were employed by the stock and station industry to service farmers. Now there are five. Agents may have more than 300 clients each, and spend most of their time servicing the top 30 percent of these clients. Less profitable clients hardly ever see an agent where previously they may have had several agent visits a week. Agents view their role as specialist advisers as important, but know their employers expect them to make sales and finalise contracts. The agent's ability to establish rapport with clients and do business is more important to the employer than technical expertise or academic qualifications. A farmer who relies on an agent for advice is less likely to get the best deal available in the open market.

MAF advice, once free, is now charged out at around $50 an hour. AgLink information sheets, once free for the asking, cost $1.50 each. MAF-organised and facilitated discussion groups pay the hourly charge-out rate for MAF input time.

Farming magazines have changed format, and the popular *New Zealand Farmer*, now a tabloid newspaper, has trebled in price. Much of the technical information published in the previous

magazine format has been dropped. Market reports feature strongly. Published weekly, the *New Zealand Farmer* now carries the kind of news and stories that the daily newspapers used to print in their farm and station supplements.

The Federated Farmers' *Straight Furrow* magazine has a new editor, who has introduced a rather impersonal business-oriented style. Technical content has increased; farmer interviews and success stories feature less.

The Christchurch *Press* newspaper has reduced the space devoted to farming each Friday from four pages to one or two, no doubt reflecting a lower level of advertiser support. This limits the information available to farmers to major highlights only from recent field days, seminars, conferences and farming competitions. There is a regular fortnightly Health Monitor report.

Articles printed in the *Press*, *Straight Furrow* and the *New Zealand Farmer* during 1988 had readability scores equating with upper secondary school and even undergraduate reading levels. The Fry readability test scores for written material suitable for average readers range between 10 and 12. Farming articles regularly score between 13 and 16. Much of what is written for farmers is hard to read and authors regularly assume that those reading the material have a high level of technical understanding.

In summary, farmers with seriously limited resources must now pay for advice. Those who will not or cannot pay have less information in written form available to them than before and much of this is written at an above average readability level. Farmers who rely on information coming to them via the mailbox are probably not aware of just how much they are now missing out on.

4. *Profit margins and change*

High interest rates and shrinking profit margins are placing tremendous pressure on the farming community. Farmers who do not maintain good financial control and/or do not have enough land are being squeezed out.

One third of the survey properties relied to some extent on off-farm income. A recent Waikato survey showed a similar situation for 46 percent of farms there. Farms near towns and cities are being subdivided and sold to urban people, many of whom have little farming experience or knowledge. These people are

looking for basic husbandry training and advice with regard to land use.

Change *is* coming. Some will have to sell their land while retaining management status. Others will have to leave altogether and compete with other landless farmers for farm managing positions. Some will try to acquire more land in order to achieve economies of scale. Most will need some kind of personal assistance to cope with these changes. They will need to train in order to learn new techniques and management practices.

Learning environments

Cereal 88, a combined MAF, DSIR and Lincoln College field day run in late November, had an attendance, over two days, of 600 people. The organisers were disappointed at the small turnout, although those who came seemed pleased with what they saw and heard.

Farmers in the survey area gave field days a relatively low rating. Perhaps they find the small plot trials on the heavier Lincoln soils do not relate to their own conditions. Maybe the gap between a scientist with a loud hailer and a group of several hundred farmers is too great.

The farmers surveyed said they liked to be in smaller groups where they could discuss and ask questions. They wanted to see new crops and techniques proved commercially by farmers in their own districts. Moving a mass of farmers around a series of tiny trial plots at a research centre, Cereal 88 style, hardly meets these criteria.

Eighty of the survey group had no formal tertiary training in agriculture. They liked to learn in the context of small farmer groups. They wanted to see what real farmers like themselves are doing. The small farmer group asking questions will encourage the technologist or scientist to use farmer terminology. This 'control' over language is lost in a very large group or lecture theatre audience.

One farmer said he liked time to take in and consider new information. Seminars, especially if they went on for more than a day, provided more information than he could usefully cope with.

CHAPTER 10

Cognition (Thought Processing) and Farmer Learning

Traditional university teaching has relied on the student's ability and/or willingness to cope with lectures and reading assignments for effective learning. Poor behaviour by some diploma level students in lectures is surely, in part at least, a protest by young prospective farmers against a teaching system which farmers normally avoid.

The following very brief summary of cognitive theory points to the urgency for farmer educators to understand better the learning processes of people growing up in a rural environment.

Research has shown differences in the way rural and urban people think (Emery and Deser, Hawkins *et al*). Bruner, an educational theorist, suggests that adolescents move from the iconic (mental images) stage to the symbolic (reasoning with symbols) stage in his cognitive progress model. Urbanising influences may assist people to move further into the symbolic stage. Bruner (quoted in Gage and Berliner, *Education Psychology*) says: 'cognitive growth is marked by the increasing ability to deal with several alternatives simultaneously, to perform concurrent activities, and to allocate attention sequentially to various situations.'

Management decision-making, especially at the whole farm analysis level, requires a high degree of cognitive development. If, for whatever reason – genetic, environmental or both to varying degrees – a person has not moved well into the symbolic state (or in Piagetian terms, the formal operations stage) he or she is likely to encounter problems.

Piaget uses the term 'externalisation' to describe the process by which a person assumes that his or her own mental productions are the same for others in the environment. Externalisation threatens any learning process in which the learner has cognitive skills of a lower order to the teacher if the teacher does not take the differences into account.

Piaget, interpreted by Elkind, says that reality is conceived by our intelligence (the stick is not really bent at the point it enters the pond) and can be different from what we perceive with our senses. Static features of concepts can be pointed to (for example, the *bulk* of feed in a paddock) but the dynamic aspects (for example, the changing quality and digestability of the feed with time) can only be reasoned about. Farmers who cannot cope with the dynamic aspects of feed dry matter discussions resist attempts to convince them that a feed budget could assist them to farm more effectively.

Elkind maintains that education in the past has focused on static reality (how to build a fence perhaps) rather than on its dynamic transformations (budgetary control). This may partly explain why many farmers do not want to budget when there are unknowns like the weather and uncertain markets which make it impossible accurately to predict future income. Their propositional thinking capacity is limited.

Piaget referred to the need for constancy. The more secure people are in their knowledge and understanding of their environment, he maintained, the more able they are to change. A new experience will then be a challenge to their *intelligence* rather than a threat to their existence. Farmers who have learnt to do something by example, but do not understand *why* they should do it, may well resist change because they feel this insecurity.

New knowledge can displace a former understanding (Piaget calls this substitution) or old knowledge may be rebuilt in the light of the new (integration). Integration is the much more stable form of learning. Farmer training is less likely to succeed if substitution is attempted while the farmers' existing rationale of the problem is not clearly shown to be inadequate.

Farmer learning difficulties

* Many farmers leave school before they have been exposed to teaching and learning at the more symbolic or formal operational stages.
* The fathers of these school leavers may not have had a secondary education. Their thinking skills may relate to an even earlier educational stage, and have developed little in the solitude of the farm. Young farmers today can find themselves locked into ways of thinking about farming, including imperial measures like bushels and

acres, which can only be redressed by involvement in continuing education.

Piaget points out that much of a person's knowledge comes from the force of his or her own logical processes. Farmers have a wealth of knowledge acquired through years of observation and quiet thought but lack the means to communicate it or receive new knowledge. Metrication has aggravated the problem. Instead of accepting new experiences as challenges to their intelligence, older farmers see them as a threat to their existence, and turn away from the people who should be able to give them help.

The survey showed that the management index was highest for those who stayed at school the longest. It may be concluded that some students have a genetically-derived cognitive advantage and stay at school longer. Or could it be that by staying at school longer the prospective farmers learn cognitive skills which later lead to their using management practices earlier school leavers do not adopt?

These are the two extremes. The current educational climate leans towards the latter by suggesting that the learning environment has a major influence in cognitive development. There is room for optimism in terms of farmer training, providing the trainers (tutors, lecturers) are aware of the dangers of externalisation, and strive to create learning environments in which the recipients of the training are at ease.

Many farmers have great difficulty with concepts like 'kilograms of dry matter' (KgDM) and 'heritability'. Selection using objective measurements in sheep has been clearly shown to bring about rapid genetic gain, yet 50 percent of the survey group placed primary emphasis on visual appearances for ram selection. Genetic potential is a concept, black spots on the ears can be seen. The scientist is the theoretician, the farmer the practitioner. Only the scientist can move to close the understanding gap, since only he or she has the conceptual capacity to grasp the principle. The challenge lies in finding a way to translate the principles into the forms practitioners understand.

One vet explains the dangers of underdosing (in worm drenching) by suggesting that the internal parasites are like people trapped in a flood. The short ones drown, the tall ones hold their heads above water and survive. Underdosing allows the 'tall' worms to survive and so chemical resistance develops.

For most agricultural educators the primary teaching/learning model is the lecture and the model for presentation of research information is the thesis or scientific paper. It is easy, then, to assume that these are the ways in which agricultural knowledge is passed on.

Agricultural graduates may have come through school with a highly intelligent peer group, mixed at university with similar students and listened to lecturers who have doctorates in their special fields. Farming is a highly complex and technical occupation, and it is sensible for theoreticians to discuss their work using correct technical language and concepts like kilograms of dry matter. A farmer, on the other hand, has stored mental images of paddocks of turnips and memories of how many hoggets a certain paddock fed in a particular year.

The scientist can calculate how much feed is in the paddock by weighing samples. The farmer remembers a similar crop and knows how many hoggets it fed without reference to scales or dry matter content. Both are satisfied with their answers. The crunch comes when a new fodder crop is introduced and the farmer has no memories to draw on. A table of comparative dry matters speaks volumes to a scientist, but means little to the farmer. To help him, he needs someone who speaks his language, who knows how he thinks.

The main learning difference at university is probably that of mental agility. Some students are able to recall better, and process more quickly and effectively than others. For farmers, and particularly for those who have not done formal study in agriculture, these differences are compounded by an unfamiliarity with the technical language and concepts used by agricultural extension workers and trainers. The very small number of farmers who listed a lecture theatre environment for learning more about all wool farming indicates that farmers are very conscious of the problem.

Improving the communication

Communication (and hence learning) will be much more likely to occur when:

* Communication takes place in an environment in which farmers feel at ease.
* The terminology used is understood by farmers.

- The principles are presented as visually and simply as possible (graphs using abstracted data from unseen trials may confuse rather than clarify a point).
- The pace of presentation does not exceed the rate at which the information is being absorbed.
- Saturation point is not exceeded. (The speed at which saturation point is reached is proportional to the degree of change involved in order to implement a new practice.)
- The practical implications of any changes are discussed fully and questions answered to the satisfaction of those present.
- Farmers know where they can obtain further assistance if they need it.
- Farmers know where they can find a farmer who has successfully implemented the changes.

Recommendations

The following recommendations for improving the level of farmer training in New Zealand should be read in the light of Appendices E and F which list facilities and services lost to farmer training in the last 10 years, and the servicing, assistance and recognition farmer training deserves and has never had.

* The farming industry needs actively to promote:
  (a) training for a greatly increased number of new entrants into farming;
  (b) continuing education for existing farmers (especially in the area of financial management).

* Research funds are needed for studying:
  (a) why farmers resist continuing education in its current form;
  (b) farmer learning difficulties and
  (c) how training in a combination of face-to-face, distance and teleconference type teaching can best be provided to the farming communities.

* The farming industry needs actively to recognise and support the very significant part the polytechnics play in providing farmer training.

* Polytechnics need actively to explore ways to better serve rural areas, particularly in the provision of farm-related training.

* Special staffing and funding formulas are needed within the polytechnic system that take into account the time spent in travel to rural centres, setting up temporary class spaces, hire of local facilities, administration of distance students and liaison funding for rural contact. Individual polytechnics should be able to provide some distance education to cater better for part-time students being serviced with a mix of training methods.

* Agricultural universities should extend current teaching facilities and staffing to provide a wider range of courses for people in, or about to begin, agricultural extension work.

* The agricultural universities need to minimise the lecture component in diploma courses, and to emphasise small group and experiential learning in order to cater better for their less academically able students.

* Colleges of education should accept many more agricultural and horticultural graduates into the Division 'C' courses to provide educationally trained people for work at both the secondary and tertiary levels.

* Secondary teachers and careers advisers need to appreciate and emphasise the need for a good educational grounding for all those intending to become farmers.

* Universities need to offer post-graduate courses in agricultural education.

Future Outlook

New Zealand farmers as a whole rely heavily on the (until recently) free services of a large and supportive infrastructure. Many farmers dependent on this support cannot afford to pay for it, and it is likely that farm productivity will drop until a higher proportion of farmers receive better education and training. If this better trained group of farmers fails to emerge, the likely trend will be to fewer, larger farms, managed by essentially business-trained people overseeing a stockman/tractor driver group (known as operatives in England) who provide the manual labour.

Farmers who have the education, training and management skills will move on into more responsible managerial positions, while less skilled farmers (probably early school leavers) will become the manual workers with day-to-day or possibly week-by-week responsibilities. Intermediate between these two groups will be farm managers working in closely with a farm consultant who has ultimate managerial control.

Past profit margins in farming have allowed farmers to buy advice and comprehensive accountancy services. Reduced profitability has put some of these services into a luxury category. Farmers heavily dependent on outside help, who cannot quickly acquire the skills they lack, must inevitably go out of business. Intending farmers must stay longer at school to develop cognitive skills for management decision-making, train at a tertiary level to acquire both husbandry and financial knowledge and skills, and work on-farm to develop practical skills. Existing farmers and their spouses will need to update, particularly in management and financial areas.

Large-scale training of people entering and continuing farming will require a greatly enlarged group of agricultural educationalists who have learnt to communicate effectively with, and train, farming people.

Special funding and conditions of service, not formally in place at the moment, will be needed to allow for tutor travel, hall hire, advertising and ancillary support. No other sector of New Zealand's

productive base is so poorly catered for in terms of training as farming. It is a matter demanding urgent and decisive attention if the training needs of New Zealanders farming into the 21st century are to be adequately met.

Bibliography

Agricultural Training Council (1979) *Primary industry training policy: a statement on future policy for training in the primary industry.* Wellington: Agricultural Training Council.

Alexander, P.S. (1988) *Farming profitability towards 2000.* Profit on the Farm Seminar, Christchurch Press/Federated Farmers, August.

Anderson, A.M. (1981) *Farmers' expectations and use of agricultural extension services.* Richmond, NSW: Hawkesbury Agricultural College.

Anderson, A.M. (1979) *How advisors advise.* PhD thesis, Hawkesbury Agricultural College, Richmond, NSW.

Anderson, A.M. (1982) *Processes and implications of knowledge transmission in Australian agricultural extension.* Richmond, NSW: Department of Communication, School of Management, Hawkesbury Agricultural College.

Atkinson, W.D. (1986) *Engineering abilities needed by the successful NZ orchardist in the 1990s: a basis for curriculum development.* M.Appl.Sc. thesis, Lincoln College.

Baillie, B.G. (1984) *The role of advisory services in educating farmers and other clients.* Paper presented at forum 'Agricultural education: where is it headed?', Australian Institute of Agricultural Science, University of New England, Armidale, NSW, October 5, 1984. Sydney, NSW: Department of Agriculture.

Bardsley, B. (1982) *Farmers' assessment of information and its sources.* Melbourne: School of Agriculture and Forestry, University of Melbourne.

Berry, W. (1977) *The unsettling of America: culture and agriculture.* San Francisco: Sierra Club Books.

Bock, I.M. (1976) *Market information and farm management decision making: a psychological study.* Melbourne: Agricultural Extension Unit, University of Melbourne.

Cameron, D.D. and Wilkinson, B.R. (1978) *Agricultural training in New Zealand: recommendations arising from a survey: 1976/77.* Wellington: Agricultural Training Council.

Carter, E.I. (1972) *Do farmers understand terms extension workers use?* Melbourne Notes on Agricultural Extension, no. 12.

Cary, J.W. and Clarke, B.N.R. (1981) *Learning to manage versus teaching farm management: some implications for farm management extension*. Christchurch: Australian Agricultural Economics Society.

Chu, H.B. (1967) *Sources of information for farmers in the Rotorua County*. Wellington: Department of Agriculture. (New Zealand Department of Agriculture Extension Research Report, no. 1) in Stack, Lincoln.

Cohen, L. and Manion, L. (1980) *Research methods in education*. London: Croom Helm.

Daniel, D.J. (1987) *Cost recovery: at what cost?* M.Agr.Sc. thesis, Lincoln College.

Davison, R.M. (1988) *A review of current financial trends and farm incomes in the New Zealand sheep and beef industry*. Address to Meat and Wool Board, March.

Delahunty, E. (1970) Communication between extension workers and farmers. *New Zealand Agricultural Science*, vol. 5, no. 3.

Dexter, E. (1973) The mass and group approach in agricultural advisory work. *Agricultural Progress*, vol. 48.

Dixon, G. (1982) *Agricultural and livestock extension, vol. 1: rural sociology*. Canberra: Australian Universities' International Development Program, Austrlaian Vice-Chancellors' Committee.

Dodd, D. and Zepke, N. (1984) *Readability of some mechanical engineering texts*. Lower Hutt: Tutor Training Unit for New Zealand Technical Institutes. (Occasional papers, no. 19).

Downes, H.E.P. (1976) *A brief survey of training in agriculture in New Zealand in the light of observations of training in comparable countries overseas*. Wellington: Agricultural Training Council. Winston Churchill Memorial Trust Fellowship report, 1974.

Dowrick, G.J. (1978) Meeting the educational needs of the agricultural industry. *Agricultural Progress*, vol. 54.

Duncan, J.F. (1953) Rural education. *Rural Education Bulletin (Lincoln College)*, vol. 8, no. 6.

Durney, G.E. (1957) *The education of the young farmer: being an investigation into agricultural education in post-primary schools in New Zealand, and a study of existing agencies for further education of young farmers*. MA thesis, University of Auckland.

Durrant, T. (1953) *Agricultural education as a national problem in New Zealand*. Proceedings of the Ruakura Farmers' Conference.

Elkind, D. (1974) *Children and adolescents: interpretive essays on Jean Piaget*. 2nd ed. Oxford: Oxford University Press.

Emery, F.E. and Oeser, O.A. (1958) *Information, Decision and Action: A study of the psychological determinants of change in farming*. Melbourne University Press.

Fairgray, J.D.M. (1979) *The influence of farm advisory officers in the diffusion of agricultural innovations*. PhD thesis, University of Auckland.

Fairweather, J.R. (1987) Farm size and population. In Wallace, L.T. and Lattimore, R. (eds.) *Rural New Zealand: what next?* Lincoln: Agribusiness and Economics Research Unit, Lincoln College.

Fairweather, J.R. (1987) *Farmers' responses to economic restructuring in Hurunui and Clutha counties: preliminary analysis of survey data*. Lincoln: Agribusiness and Economics Research Unit, Lincoln College. (Research report, no. 187).

Farquhar, R.N. (1966) *Agricultural education in Australia*. Melbourne: Australian Council for Educational Research. (Research series, no. 80).

Federated Farmers of New Zealand. (1987) *Tertiary review submission*. Federated Farmers of New Zealand Inc., May.

Federated Farmers of New Zealand, Women's Division. (1976) *The rural women of New Zealand: a national survey (1975)*. Christchurch: University of Canterbury.

Francis, G.V. (1984) On-farm instruction for farm families. *Agricultural Education Magazine*, vol. 57, no. 5.

Frengley, G. (1987) Farming perspectives. In Wallace, L.T. and Lattimore, R. (eds.) *Rural New Zealand: what next?* Lincoln: Agribusiness and Economics Research Unit, Lincoln College.

Fyfe, D.L. (1974) *The role of the journalist in agricultural extension*. Proceedings of the New Zealand Grasslands Association Conference, 36.

Gabb, R. (1983) *Diploma of agriculture delphi study* (unpublished), Lincoln College.

Gage, N.L. and Berliner, D.C. (1975) *Educational psychology*. Chicago, Illinois: Rand McNally.

Gibbs, D.B. (1970) *Communication patterns among sheepfarmers in two North Island districts of New Zealand*. M.Agr.Sc. thesis, Massey University, Palmerston North.

Greer, J.P. (1982) *Motivation and other factors influencing the adoption of practices by sheep farmers in Oxford County, NZ*. M.Agr.Sc. thesis, Lincoln College.

Grigg, R. (1987) A woman farmer's perspective. In Wallace, L.T. and Lattimore, R. (eds.). *Rural New Zealand: what next?* Lincoln: Agribusiness and Economics Research Unit, Lincoln College.

Hakansson, R. and Denig, E. (1956) The written word. In Penders, J.M.A. (ed.) *Methods and program planning in rural extension*. Wageningen, The Netherlands: Veenam and Zonen.

Harris, R.M.D. (1966) *An enquiry into the principles underlying the teaching of agriculture in certain New Zealand post-primary schools*. MA thesis, Victoria University of Wellington.

Hawkins, H.S. and Presser, H.A. (1973) *Farmers' perceptions of their needs for farmer education or training*. Paper to Australian Agricultural Extension Conference, CSIRO, Canberra.

Hawkins, H.S., Almond, E.F. and Dwyer, M.G. (1974) *Post-secondary educational needs of Australian farmers, a survey of opinions of farmers and agricultural college staff*. Melbourne: School of Agriculture and Forestry, University of Melbourne.

Hill, L.J. (1967) *A survey of farmers' level of farming and attitudes in Southern Southland*. Wellington: Department of Agriculture (NZDA Extension Research Report, no. 3).

Hockings, B. (1979) Government assistance: what are the priorities? *New Zealand Farmer*, vol. 100, no. 5.

Innes, G.D. (1949) The farm training scheme of the Canterbury Youth Farm Advisory Council. *Rural Education Bulletin (Lincoln College)*, vol. 4, no. 9.

Innes, R.M. (1927) *The training of farmers (being an inquiry into the organisation of agricultural instruction in Canterbury)*. MA thesis, University of Canterbury.

Jamison, D.T. and Lau, L.J. (1982) *Farmer education and farm efficiency*. Baltimore: Johns Hopkins University Press, for the World Bank.

Jose, H.D. *et al* (1988) *Dairy farm management practices survey summary report to respondents May 1988*. Palmerston North: Department of Agriculture and Horticultural Systems Management, Massey University.

Kampanellas, P.G. (1981) *Farmers' attitudes towards the farm advisory service: a study in Cheviot County, North Canterbury, New Zealand*. M.Agr.Sc. thesis, Lincoln College.

Leagans, J.P. and Loomis, C.P. (1971) *Behavioural change in agriculture: concepts and strategies for influencing transition*. Ithaca: Cornell University Press.

Lively, J.P. and Nuthall, P.L. (1983) *A survey of farmers' attitudes to information*. Lincoln: Agribusiness and Economics Research Unit, Lincoln College. (Discussion paper, no. 76).

Loftus, L. and Cary, J.W. (1980) *Towards an understanding of management education in agriculture*. Melbourne: School of Agriculture and Forestry, University of Melbourne.

Lynch, M.L. (1977) *Lifelong education for practising farmers*. Woden, ACT: Technical and Further Education Commission.

McClymont, G.L. (1975) *Formal education and rural development*. Rome: Food and Agriculture Organization of the United Nations. (Occasional paper, no. 3).

McMillion, M.B. (1960) *The sources of information and factors which influence farmers in adopting recommended practices in two New Zealand counties*. Christchurch: Simpson and Williams. (Canterbury Agricultural College, Lincoln. Technical publication, no. 19).

McMillion, M.B. and Saufley, S. (1983) Adult farm business management: the Virginia trial. *Agricultural Education Magazine*, vol. 56, no. 2.

McSweeney, D.B. (1975) *Agricultural education planning and policy in New Zealand*. Paper given to the National Education Planning Workshop, Orange Agricultural College, Orange, NSW.

Margetts, S.W. (1968) A study of some Ballarat farmers' use of agricultural mass media. *Melbourne Notes on Agricultural Extension*, no. 2.

Marriott, R. and Elley, W.B. (1984) *Apprentices learning in block courses: a research report*. Christchurch: Christchurch Polytechnic.

Marriott, R. and Elley, W.B. (1985) *Teaching from a learning point of view*. **set**, no. 2, item 9.

Mears, A. (1974) *Part-time farming in the Christchurch rural-urban fringe*. MA thesis, University of Canterbury.

Mohamed, N.A. (1987) *Plant health information sources used by cropping farmers in Canterbury*. M.Agr.Sc. thesis, Lincoln College.

Moser, C.A. and Kalton, G. (1972) *Survey methods in social investigation*. 2nd ed. London: Heinemann.

Moss, G. (1987) *The trainers handbook for managers and trainers*. Wellington: Ministry of Agriculture and Fisheries.

Mote, J.K. (1974) *The diffusion of irrigation in the old Ellesmere County*. MA thesis, University of Canterbury.

Napier, R. and Chudleigh, J. (1987) *Report to the NSW Industry Training Council*. Orange Agricultural College, Orange, NSW.

New Zealand Consultative Committee on Agricultural Education (1958) *Report presented by the committee appointed by the Minister of Education in June 1956*. Wellington: Department of Education.

New Zealand Farmer (1980) 'Dear Readers': summary of reader response to survey re topics/subject matter in magazine. *New Zealand Farmer*, vol. 101, no. 14.

Naylor, M. (1970) *Farming and farmers: a decade hence*. Agricultural Extension Seminar, Massey University, Palmerston North.

O'Connell, M.J. (1986) *Town living in the country: small holdings in the Christchurch peri-urban fringe*. MA thesis, University of Canterbury.

Oppenheim, A.N. (1966) *Questionnaire design and attitude measurement*. London: Heinemann.

Oram, P., Beal, G.M. and Kern, K.R. (1987) *Information and knowledge exchange among agricultural research, dissemination, and producer systems in selected South Pacific island nations: some policy issues*. Honolulu: Institute of Culture and Communication, East-West Center.

Osburn, D.D. and Schneeberger, K.C. (1978) *Modern agricultural management*. New York: McGraw-Hill.

Palmer, G.K. (1973) Agricultural memos: what do farmers think of them? *Melbourne Notes on Agricultural Extension*, no. 8.

Persons, E. (1981) Management education: Old MacDonald's farm is gone! *Agricultural Education Magazine*, vol. 53, no. 12.

Phillips, T.I. (1985) *The development of methodologies for the determination and facilitation of learning for dairy farmers*. M.Agr.Sc. thesis, University of Melbourne.

Phipps, L.J. (1954) *Successful practices in adult farmer education*. Danville, Illinois: Interstate.

Plummer, C.R. (1971) *The newspaper in advisory work*. Wellington: Farm Advisory Division, New Zealand Department of Agriculture.

Presser, H.A. (1972) *Farmers' knowledge of and attitudes towards farm education*. Melbourne: School of Agriculture and Forestry, University of Melbourne.

Pryde, J. (1987) Capital and agriculture. In Wallace, L.T. and Lattimore, R. (eds.) *Rural New Zealand: what next?* Lincoln: Agribusiness and Economic Research Unit, Lincoln College.

Pryde, J.G. and McCartin, P.J. (1987) *Survey of New Zealand farmer intentions and opinions, October – December 1986*. Lincoln: Agribusiness and Economics Research Unit, Lincoln College. (Research report, no. 188).

Rennie, N. (1979) The Mangamahu survey. *New Zealand Farmer*, vol. 100, nos 8-10.

Robertson, B.T. (1981) *The effective publication of grassland research*. Proceedings of New Zealand Grasslands Association Conference, 42.

Robertson, B.T. (1986) *Refresher leave report*, September.

Rogers, E.M. (1983) *Diffusion of innovations*. New York: Free Press.

Rogers, E.M. (1960) *Social change in rural society*. East Norwalk, CT: Appleton-Century-Crofts.

Rwenyagira, B.W. (1985) *Farmers' group organisation and operation for effective agricultural extension: a study of farmers' discussion groups in Ellesmere County, New Zealand and Kibaha District, Tanzania*. M.Agr.Sc. thesis, Lincoln College.

Scott, T.H. (1947) The intelligence of rural people in New Zealand. *Rural Education Bulletin (Lincoln College)*, vol. 2, nos 7 & 8.

Scott, T.H. (1947) The standard of education of those entering farming in New Zealand. *Rural Education Bulletin (Lincoln College)*, vol. 2, no. 5.

Sheahan, B.T. (1981) *Media impact in rural areas: a study of farmers' information sources*. Roseworthy, South Australia: Roseworthy Agricultural College.

Simpson, D. (1973) *Agricultural education in the Wairarapa: a statistical survey of farmers and farm employees*. Dip. Ed., Massey University, Palmerston North.

Simpson, P. (1986) *Teacher's guide to jobs in the country*. Sydney, NSW: Department of Education.

Somerset, H.C.D. (1931) *An experiment in rural education*. MA thesis, University of Canterbury.

Somerset, H.C.D. (1946) Wild, of Feilding. *New Zealand Listener*, vol. 16, no. 392.

Stark, W.W.H. (1966) *Agricultural education in the post-primary school*. Christchurch: St Andrews College.

Starling, J.T. and Ware, B. (1978) "PAY OFF" through farm business analysis for young and adult farmers. *Agricultural Education Magazine*, vol. 50, no. 10.

Stewart, P.D. (1968) *Landscape evolution in the Ashburton Plains*. MA thesis, University of Canterbury.

Thomas, G.N. (1973) One audience for all types of media. *Melbourne Notes on Agricultural Extension*, no. 6.

Tipples, R. (1987) The rural work force. In Wallace, L.T. and Lattimore, R. (eds). *Rural New Zealand: what next?* Lincoln: Agribusiness and Economics Research Unit, Lincoln College.

Tough, A.M. (1971) *The adult's learning projects: a fresh approach to theory and practice in adult learning*. Toronto: Ontario Institute for Studies in Education.

Tuckman, B.W. (1978) *Conducting educational research*. 2nd ed. New York: Harcourt Brace Jovanovich.

Tuohey, C.L. (1970) A study of the reading ability of some Victorian farmers and the reading difficulty of farmers' publications. *Melbourne Notes on Agricultural Extension*, no. 8.

Underwood, C.A. and Salmon, P.W. (1980) *Nature and extent of self-directed learning in agriculture*. Melbourne: Melbourne School of Agriculture and Forestry, University of Melbourne.

University of New England. Tertiary Agricultural Education Project (1973) *Consensus and conflict in agricultural education: a comparative study of four Australian agricultural colleges*. St. Lucia: University of Queensland Press. (Educational administration and organization.)

Vane, N. (1970) *Agricultural extension developments overseas*. Proceedings of the Agricultural Extension Seminar, Massey University. Wellington: Department of Agriculture.

Verma, G.K. and Beard, R.M. (1981) *What is educational research? perspectives on techniques of research*. Aldershot: Gower.

Vine, R. (1956). Agriculture in education. *New Zealand Farmer*, vol. 77, no. 3.

Wallace, L.T. and Lattimore, R. (eds.) (1987) *Rural New Zealand: what next?* Lincoln: Agribusiness and Economics Research Unit, Lincoln College.

Wards, H.C.A. (comp.) (1970) *Training in agriculture: report of a national conference, Wellington, 21-22 July, 1970*. Wellington: YFC. Federation.

Watson, J.E. (1949) *Agricultural education in post-primary schools in Canterbury, Otago and Southland*. MA thesis, University of Otago.

Western Australia. Advisory Committee on Agricultural Education (1971) *Agricultural education in Western Australia: report of the Advisory Committee on Agricultural Education*. Perth: Education Department of Western Australia. Chairman: W.R. Stern.

Wild, L.J. (1953) *The development of agricultural education in New Zealand*. Christchurch: Whitcombe & Tombs.

Wild, L.J. (1946) *First Hilgendorf Memorial Lecture delivered by L.J. Wild... in the College Hall on 20 April 1946*. Christchurch: Canterbury Agricultural College Old Students Association.

Wilkinson, B.R. (1978). Present and future policies for agricultural education. *New Zealand Agricultural Science*, vol 12, no. 4.

APPENDIX A

Learning Environments

Options given to farmers for the question about preferred training environments.

(a) Large seminar (100 people) in a lecture theatre setting lasting for a 6-7 hour day.
(b) Farm discussion group.
(c) Farmers in a local hall addressed by, say, an industry rep and a farm consultant (half-day or evening meeting).
(d) Seminar with demonstrations and an opportunity to discuss and ask questions in groups of 8-10 farmers.
(e) Talking with other farmers.
(f) Farm adviser visit.
(g) Talking with a stock agent or industry rep.
(h) Reading *New Zealand Farmer* articles.
(i) Other (please state).

APPENDIX B

The Management Index

A management index was constructed in order to identify farmers using various management tools to enhance their farming business. The individual factors are listed below.

Where some items were not relevant to the type of farming carried out, these were omitted, and the index worked out on a percentage basis.

One point was awarded for each practice or strategy evidenced, and the index worked out as a percentage.

1. Is able to itemise (postpone) developmental work required to make the farm more efficient/productive.
2. Suggests that business/financial skills are needed by a modern farm manager.

3. Keeps a cashbook or alternative.
4. Does the GST every two months.
5. Is in touch with the accountant/financier more than 4 times/year on average.
6. Does a cashflow forecast budget.
7. Has done a cashflow budget for more than 5 years or since taking on management responsibilities.
8. Refers to budget regularly.
9. Uses more than reading matter and other farmers to stay up-to-date.
10. Has initiated management changes of some sort in the past 5 years.
11. Uses a farm adviser or consultant.
12. The farming partner (spouse) is fully involved in major farm decisions.
13. Attends more than 2 field days, seminars, etc. (not farm discussion group) each year.
14. Attends a farm discussion group.
15. Sets distinct, attainable short-term goals.
16. Can recall a management change leading to increased production.
17. Uses sheep scales.
18. Uses the scales for more than just weighing lambs destined for the freezing works.
19. Culls problem lambers.
20. Selects rams using breeding records in some way.

APPENDIX C

Table C1

Needs and Sources Mentioned (first choices)

Information advice and training	Personal needs	Lean lamb	Fert rate	Weed spray	Start farming	Worm drench	Farm mgr	Start goats	Finan skill	Total mentions
Talk to local vet	7					1		6		131
Get an AgLink	6	5	7					7		34
Stock and station agent	1	4	1	10	4			5		100
MAF adviser or farm consultant	3	1	2	5	3			2	7	229
Talk with farmers who have tried it	2	3	4	4	2	7		1		181
Go to field day on farm where idea is working well	5							3		56
Go to an industry field day	4									
Lincoln College 2-day course	8								6	19
Telford short course (3-5 days)					9		6		2	76
Correspondence course					6		3		3	71
Polytechnic part-time farming course					2		4	8		57
Polytechnic part-time farm management course held locally					3		1		1	144
Work for a farmer					1		2			121
Lincoln College Diploma					7		5			29
Some other known way				2*	3,5,6**	8***		9,10†	4,5††	235
Don't know										25

* Fertiliser co.

** Spray contractor; Ag. chemical manual; Chemical co. rep.

*** Accountant/banker

† Try a few; read widely

†† Accountant; local short course

BEST COPY AVAILABLE

APPENDIX D

Important Events and Reports 1970 -1990

1970 Agricultural Extension Seminar, Massey University, YFC National Conference 'Training in Agriculture'.

1971 Agricultural Training Council formed, Farm Systems Analysis Project initiated.

Trades Certification Board FARMING prescription approved.

1974 Downes Report – a survey of agricultural training.

Trades Certification Board FARM MANAGEMENT prescription approved.

1978 Cameron/Wilkinson Report – agricultural training in New Zealand.

1981 Task-based prescription approved for TCB FARMING course, Training Guides published.

Tunnicliffe Report – agricultural education in New Zealand schools.

1983 Delphi survey carried out for Lincoln Dip. Ag.

1984 RNZ Institute of Horticulture introduces task-based Certificate in Horticulture Practice.

Farm Ballot scheme scrapped – TCB Farm Management numbers plummet.

1985 Agricultural Training Council Funding reduced, Federated Farmers unable to support financially.

Massey introduces new-look Diploma in Agriculture course.

1986 Agricultural Training Council with its Regional Training Committees scrapped.

1987 Cadet Scheme funding reduced.

Polytechnics run more fulltime courses in Farming.

Cadet numbers fall to 1000 (1600 in 1984).

1988 Two-year Diploma course begun at Lincoln.

Flock House drops one-year farming course.

TCB Farm Management prescription revised and is renamed Farm Business Management.

1990 NZQA (New Zealand Qualifications Authority) replaces TCB, AAVA, RNZIH and Board of Studies.

APPENDIX E

Facilities and Services Lost to Farmer Training in the Last 10 Years

- The Agricultural Training Council, Agricultural Training Officers and Regional Committees.
- Free advisory service (MAF).
- Many of the stock and station agents who provided farmers with free advice.
- The incentive for farm manager training provided by the defunct Land Settlement farm ballot scheme.
- The carefully developed one-year young farmer training course at Flock House.
- Low-cost training for farm workers (examination fees up 200% or more in 1989, study fees up 200% to 300% in 1990).
- Adequate cadet scheme funding.
- Low-cost courses from MAF (Flock House 3-day course may cost $600 in travel, fees and board).

APPENDIX F

Servicing, Assistance and Recognition Farmer Training Has Never Had

- Post-graduate university courses in extension.
- Adequate university staffing levels for the training in communication,

personnel management and interpersonal relationships needed to prepare agricultural graduates properly for advisory work.

* Official recognition of the travel and administrative time required by polytechnic tutors taking farmer classes in rural centres.
* An aggressive stand by Federated Farmers in relation to post-secondary training for farming (FF seem content with a cadet training system that currently trains less than 6 percent of the people entering farming).
* Good communications between the various institutions offering farming training at a post-secondary level.

APPENDIX G

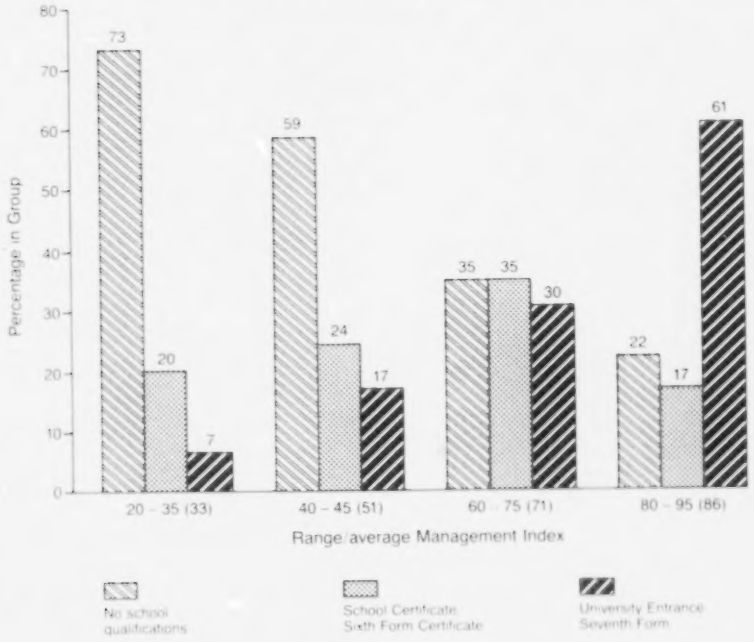


Figure G.1
Management Index/School Attainment

QUESTIONNAIRE

Opening Discussion about Farm and Family

1. Brief farm history 1 3 gnrns, 2 2 gnrns, 3 No prev fam.
   Prefix – 1-shp, 2mxed, 3crp, 4 sh/bf, 5 Othr
2. Ownership structure? 1 Owner/manager 2 Partnership
   3 Trust 4 Leased 5 Manager 6 Company 7 Other
3. Family group? 1 Couple 2 Single 3 Other
4. Number of children?_____
5. Age range? 1 Preschool 2 Primary 4 Secondary
   8 Post-Secondary.
6. What is your management role in relation to the property at present?
   1 Sole responsibility 2 Share management 3 Other
7. How long have you been managing the farm? _____
8. What important development work has been carried out in the last 20 years?

   _____

   _____

   _____
9. Have you had to postpone development plans because of the present downturn in farm incomes?
10. (If *Yes* to 9). What further development would you like to carry out?

    _____

    _____

    _____

I'd like your opinion about the people entering farming at the moment.

11. From your own observations, who are the ones taking on the running of farms as farmers retire from active farm work?
    1 Businessmen 2 Other farmers 3 Farmers' sons 4 Paid mgrs
    5 Don't know
12. How will they have learned to farm?

    _____

    _____

    _____

101 BEST COPY AVAILABLE

13. Think of a person *with some farming experience* taking over the management of a property like this one. Just briefly, what particular skills or knowledge do you think this person would need to manage it successfully?
    1 Business skills 2 Financial mgt 4 Practical skills
    8 Local knowledge

Farming, as you well know, is a pretty wide-ranging job in terms of the husbandry and business skills needed. I'm interested to know just how much of the business side of farming people like yourself are doing now.

14. How many farmers would you estimate use a cash book now?
    1. 20% 2. 20% 3. 30% 4. 40% 5. 50% 6. 60% 7. 70%
    8. 80%
15. Do you keep a farm cash book?
16. (If *Yes* to 15) Who puts most time into keeping it up to date?
    1 Self 2 Wife 3 Other
17. (If *No* to 15) What are your thoughts about keeping a cash book?

    _____

    _____

    _____

18. Do you do your own GST returns?
19. (If *No* to 19) Who does the GST returns for you?
    1 Accountant 2 Farm Sec 3 Other
20. Did you choose the 2 or the 6 monthly period?
21. Do you employ an accountant who specialises in *farm* accounts?
22. How often do you have contact with him? (times/year)
23. Do you have regular contact with your stock firm (prefix 1)/bank (prefix 2) manager (or financial controller for the firm)?
24. How often do you speak to him? (see prefix) (times/year)
25. Do you make use of a cashflow forecast budget?

    If *Yes* to 25, supplementary questions:

26. How long have you been doing this? (years)
27. How did you learn to do it?

    _____

    _____

    _____

28. Why did you begin to do a budget?

_____

_____

_____

29. When do you refer to the forecast budget?
1 Don't 2 $s tight 3 Lge chge inc/exp 4 See acct/mgr
5 Planning 6 Other

30. (If *cashbook* kept) Do you update this forecast budget at the same time as you do the cashbook?

If *No* to 25, supplementary questions:

31. Who do you think would be the best person to help with the preparation of a cashflow forecast budget if you were asked to provide one by your stock firm or bank?
1 Stock firm finance mgr 2 Accountant 3 Farm Advisor/Cnslt
4 Self 5 Other

I'm trying to build up a picture of the kind of education and training people in my survey area have had over the years. With farms run much more in partnership these days, I'm asking the same kinds of questions about the women as the men.

So, can I start with you?

32. How many years of secondary schooling did you complete?

33. What was your highest level of attainment there?
0 Nil 1 SC 2 SFC 3 UE 4 UB

34. What further study have you done since leaving school?
1 HS Agr 2 FTI 3 Dip.Ag. 4 TCB F'g 5 TCB FMgt
6 Dip FMgt 7 Degree 8 FTI Short Course 9 Other (say)

35. Has commitment to farm and family ever prevented you from doing further farming study?

36. (If *Yes* to 35) What would you like to learn more about?

_____

_____

_____

37. (If *married*) What was the highest level of attainment reached by your wife at High School?
0 Two yrs 1 Three yrs 2 SC 3 SFC 4 UE 5 UB

38. What work qualifications/experience does your wife have?
1 None 2 Office 3 Teacher 4 Nurse 5 Sales 6 Bank 7 Farm
8 Other

39. Have farm and family commitments prevented her from furthering her education?

40. (If *Yes* to 39) What do you believe she would like to learn more about?
1 Farm recording 2 Farm finance 3 Husbandries
4 Personal devt 5 Other

41. (If *children*) Tell me about the kind of education have you wanted for your children in order to better prepare them to earn a living?
1 SC 2 SFC 3 UE 4 7th Form 5 Trade/Poly 6 Degree/TC
(prefix 1-4 with 1 if boarding school)

I'm wondering about the part family members play on the farm.

42. Do you run the farm in partnership with your wife?

43. How much of your wife's time is involved in actual farm work?
hrs/week

44. In what specific ways does your wife help?
1 Busy times 2 Office 3 Stock 4 Tractor 5 Cooking
6 Most 7 Anything 8 Other

45. Are there things you wish she could be of more help with?

46. What are they?

_____

_____

_____

47. What prevents her from helping more than she does now?
1 Family care 2 Off-farm job 3 Not trained 4 Doesn't want to
5 Other

48. (If a *son/daughter is working* on farm) To what extent does your son/daughter participate in actual management decision-making?
1 None 2 Some 3 A lot 4 Fully

49. What specific responsibilities (if any) do they have on the farm?

_____

_____

_____

50. In what areas do you wish they could be of greater assistance?

_____

_____

_____

51. What kind of farm study have they done (if any)?
1 HS Agr 2 FTI 3 Dip. Ag. 4 TCB F'g 5 TCB FMgt 6 Dip FMgt
7 Degree 8 FTI Short Course

Now some questions relating to the way farmers keep up-to-date with changes within the farming industry.

52. How do you manage to say up-to-date with developments in your type of farming?
1 Reading 2 Radio 3 Field days 4 Stock/grain agent 5 Courses
6 Advisor/conslt 6 Other farmers 7 Farm discussion groups
8 Special mtgs 9 Other (say)

53. Which of these do you refer?

54. Let's take the past five years as the time period for this question. Are there any changes that you have made to the way you run the farm that particularly stand out in your mind?

_____

_____

_____

55. Suppose the DSIR has developed a new pasture plant that may have real advantages for your farm. What would you do to learn more about it before you decided to try the new plant yourself?
1 Reading 2 Ask DSIR 3 Field day 4 Ask farmer using it
5 Farm consultant 6 Seed agent

56. Whose advice would you take most notice of regarding the new pasture cultivar?

_____

_____

_____

57. Lincoln College and the Wool Board joined forces in May to run a 2-day course on wool production. They called it 'Wool Production for Profit'. Do you remember hearing about it?

58. (If *No* to 57) The wool course was in early May. If you *had* known about it, would you have tried to get along?

59. (If *Yes* to 58) What discouraged you from attending?

_____

_____

_____

60. The course was advertised throughout New Zealand. How do you react to the news that 60 farmers attended that wool course and, of these, just 30 came from Canterbury?

_____

_____

_____

61. Who do you talk to when you want the latest information about preparing wool for sale?
1 Wool buyer 2 Stock firm 3 Wool Bd rep 4 Other

Farmers have been encouraged to try different things over the years – regular soil testing, silage for drought feed, WX lambs, Matua prairie grass for pastures and so on.

62. Here are some ways (show card) that farming people find out more about these things.

They are listed roughly in order of the time spent finding out about them. If you are uncertain about the nature or content of any of them, please ask.

1) Talk to the local vet
2) Get an Aglink on the topic
3) Talk to the stock and station agent
4) See a MAF adviser or a farm consultant
5) Talk with farmer friends who have tried it
6) Go to field day on a farm where the idea is working well
7) Go to an industry field day
8) Go to a 2-day course at Lincoln College
9) Go to a Telford short course (3-5 days)
10) Do a correspondence course
11) Join a polytechnic part-time Farming course (15 days/year, 10am-3pm) held locally running for 3 years
12) Join a polytechnic part time Farm Management course (17 days/year, 10am-3pm) held locally running for 2 years
13) Go to work for a farmer (a farm 'apprenticeship')
14) Do the Lincoln College Diploma (2 years fulltime)
15) Some other way that you know of (please say what it is).

Here are some real-life situations. Choose (from the list) the most effective way (or ways) that you think a person can find out what he/she needs to know. Please don't hesitate to make your own suggestions (o) if you think there are better ways not listed.

a) Bert wants to find out how to grow leaner lambs

b) Graeme wants to work out fertiliser application rates from his soil tests

c) Nigel wants to know what he should use to spray out persistent pasture weeds

d) A 25-year-old married fitter and turner is determined to go farming

e) Jan wonders if she should use a different worm drench.

f) A 30-yr-old shearer wants to improve his chances of getting a job as a farmer manager

g) Jenny wants to start a goat enterprise on the farm

h) Alan, a fulltime farmer, wants to improve his financial management skills

63. Please choose your three preferred methods for learning something new about sheepfarming from the list on the card. Imagine it is something like 'All Wool Farming'.

a) Large seminar (100 people) in a lecture theatre setting lasting for a 6-7 hour day

b) Farm discussion group

c) Local farmers in a local hall addressed by, say, an industry rep and a farm consultant (half-day or evening meeting)

d) Seminar with demonstrations and an opportunity to question and discuss in groups of 8-10 farmers

e) Talking with other farmers

f) Farm adviser visit

g) Talking with a stock agent or industry rep

h) Reading *NZ Farmer* articles

i) Other (please state)

You *chose* ....., ..., ... Is that in order of personal preference?

Now I'd like to ask some questions relating to the general management of the property.

64. Do you use a farm adviser or consultant?

---

65. Is your farming partner fully involved when important management decisions are made?

66. How often do you attend field days and seminars on your type of farming?

67. What was the last field day you went to?

68. Do you belong to a discussion group?

69. How many times a year do you meet?

70. Do you spend time keeping up-to-date with different types of farm diversification?

71. (If Yes to 70) How do you do this?
1 Reading 2 Field days 3 Talk to adopters 4 Adviser

72. Do you regularly set goals for yourself in relation to the farm?

73. (If Yes to 72) What would be one of your shorter term goals?

_____

_____

_____

74. Do you own a set of sheep scales?

75. (If Yes to 74) What jobs are they used for?
1 Drafting lambs 2 Selecting rplts 3 Feed monitoring

76. What system of lambing management do you follow?
1 Shedding off 2 Set stocking

77. What do you do with ewes that have lambing problems?
1 Assist/cull 2 Assist/keep 3 Assist/1 more chce
4 Keep/sell lambs 5 Assist/cull if serious problem

78. How much silage do you aim to make each year (if any)? (t)

_____

79. What are the 3 most important characteristics you consider when buying rams?
1 Wool wght 2 Lean growth 3 Index 4 Fertility
5 Conformation 6 Wool cover 7 Defects 8 Other

80. Which one of these 3 are you giving the greatest priority to at the moment? (See above for code)

81. Do other farmers look to you for advice?

82. Ignoring the economic difficulties for a moment, would you say you enjoy farming for your livelihood?

83. What is one management change that stands out in your mind that has really helped lift your farm's level of production?

_____

_____

_____

Now some questions that will help me get an idea of your farm situation.

84. Age group
1. <25 2. 25-34 3. 35-44 4. 45-54 5. 55-64 6. >764

85. Farm size

86. Flock breed
1 Crossbred 2 Corriedale 3 Romney 4 Coopworth
5 Fine wool 6 Other

87. Flock composition/numbers

Stock wintered	Ewes
	Hoggets
	Rams
	Other
For SU/ha	Deer
	Cattle
	Goats
	Other
	Total

88. What area do you sow in fodder crop each year?

89. What area do you have in cash crop each year?

90. What is your farm type?
1 Sheep 2 Mixed crop 3 Sheep/Beef 4 Sheep/Deer
5 Sheep/Goats 6 Other

91. What other labour do you employ if any? (in terms of labour units or fraction of a labour unit over a whole year)?

_____

_____

92. Assuming that farming is beginning to make a slow return to profitability, do you see yourselves still farming here in 5 years' time?

93. Do you expect this property will be farmed much differently by then?

94. (If Yes to 95) What major changes do you foresee?

95. How many years have you spent in fulltime farming?

96. What do you consider is your business centre?
1 Darfield 2 Christchurch

97. How far is it to Christchurch?

98. This is not intended to be a financial survey, but it would be helpful to know your debt servicing to gross income ratio (nearest 10%)
1. 10% 2. 20% 3. 30% 4. >40% 5. <10% 6. None

BEST COPY AVAILABLE

Learning on the Farm

Farmer training has been termed the Cinderella of the New Zealand education system. In order to find out how best to provide farmers, present and future, with suitable training, the author carried out a unique survey of the educational background and preferred ways of learning for 110 farmers and their families in a rural Canterbury community. The book contains a wealth of facts of interest to women's groups, sociologists, farm advisors, bank managers and accountants as well as everyone involved in farmer training and education.

The findings bear out the general lack of formalised training amongst farmers, and question the ways training has been provided in the past. The book provides a farmer voice by expressing the way in which farmers view training and how they want to learn.

The author briefly discusses rural and urban differences and how these may affect farmer training. He draws attention to the decline in rural servicing and the decreasing numbers of people training for farming, and concludes with a call for a renewed commitment to farmer training by government, the farming industry and training institutions.

The Author

Raised in rural Otago, Southland and Canterbury, Ken Moore draws on a rich experience of country living. After completing an agricultural science degree at Lincoln College, he lectured at an agricultural science college in Australia, then worked as principal of a farmers' training centre in Tanzania. Returning to New Zealand, he trained as a secondary teacher, completing a Dip Ed while teaching in South Otago. For the past 10 years he has been a rural tutor with the Christchurch Polytechnic. During this time he has been active in the prescription review of the national trade farming course and in developing a fulltime farming course at the Polytechnic.

BEST COPY AVAILABLE

110

New Zealand Council for Educational Research